Evidence of Readiness Report

Building 910 Evaporators

Prepared by:

D. A. Ringle
Environmental Restoration Management,
Solar Pond Projects

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*NOTE: The sections in this document correspond to the sections in the Self-Assessment Review Package.

INTRODUCTION

The overall mission of the Rocky Flats Plant Solar Pond Projects (SPP) is to close and remediate the solar ponds; to remediate adjacent contaminated surface and subsurface soil and water (Water Management); and to store current and future treated and untreated remediation wastes in accordance with applicable laws pending their final disposition. A sub-project of the overall Water Management effort is the evaporative treatment of water pumped from the Interceptor Trench System (ITS) Diversion portion of the SPP: the Building 910 (B910) Evaporators.

I. SUMMARY AND RECOMMENDATION

Based upon the classification of the SPP (and therefore B910) as Category 3 (low hazard), LLMW facilities/operations, EG&G conducted a Self-Assessment which employed the graded approach described in Section IV. In addition, DOE, RFO-ERD conducted a Special Assessment, as described in Section IV E. EG&G's selection of appraisal areas and the depth and detail to which they were appraised was based upon knowledgeable and prudent assessment of the facility and operations. Areas critical to B910 operations and to the protection of health and safety of workers, the public, and the environment received the most detailed review, based on a qualitative assessment of risk and the B910 FSAR.

EG&G, SPP, believes that the graded approach has been properly defined and employed in this Self-Assessment. Under this approach, Key Project Elements which are definitively developed and/or extensively controlled by plant wide programs were not as rigorously assessed as those project elements which are not: The graded approach generally imputed compliance in the case of project elements which were developed and/or extensively controlled under RFP programs such as the CCCP, COEM, COOP, IWCP, and TUM.

77 actions and 10 Observations resulted from the EG&G Self-Assessment and the DOE, RFP-ERD Special Assessment. The actions have been categorized as follows [reference Attachment 2 for detail]:

- 39 Open Items (14 are closed)
- 38 Findings (1 is closed)
  - -- including multiple Engineering Findings from 2 EG&G checklists
  - -- including 14 Findings from the DOE, RFO-ERD Special Assessment, several of which duplicated EG&G findings

The 77 actions have been further identified as follows [reference Section IV D for more detail]:

- 72 Pre-Startup actions
  - -- 50 to be completed prior to Hot System Operation (SO) Testing (11 are closed)
  - -- 22 to be completed <u>prior</u> to start of evaporator operations (2 are closed)
- 5 Post-Startup actions to be completed <u>after</u> start of evaporator operations (2 are closed)

EG&G, SPP, certifies that all Open Items and Findings resulting from the Self-Assessment and Special Assessment are:

- closed as of the date of this Evidence of Readiness Report;

or,

- that adequate Action Plans / compensatory measures have been approved for their resolution, and that the responsibilities and commitment dates for those resolutions are being adequately tracked.

Further, EG&G, SPP, finds that there are no outstanding (open/unresolved) Open Items or Findings which:

- would degrade the protection of health and safety of workers or the public;
- pose any significant potential for spill or other environmental insult;
- pose the potential for violation of any permit, statute, primary DOE Order(s), or FSAR requirements;

or,

- would constitute a substantial effect on the ability of SPP to carry out its programmatic mission.

Finding that there are no pending actions of such significance as to reasonably preclude the safe operation of the B910 evaporators systems, EG&G, SPP, therefore recommends that the United States Department of Energy, Rocky Flats Office, grant an authorization to EG&G Rocky Flats, Inc., to operate the B910 Evaporators.

II. PHYSICAL BOUNDARIES

B910 is located directly south of the 207A and 207B Solar Ponds inside the Rocky Flats Protected Area. Figure 2.1 schematically indicates the location of B910 on the plant site and its proximity to the solar ponds and Temporary Modular Storage Tanks (TMSTs).

B910 is a rectangular structure built in 1977, measuring 47 feet wide by 101 feet long and containing a main floor and basement. It is of concrete block construction with 12-inch thick basement exterior walls and hollow block exterior walls from the ground level upward. The roof is constructed of pre-stressed concrete double tees covered with 2.0 inches of perlite, felt, 1.0 inch of rigid insulation, built-up roofing, and a top coat of aluminum. The main floor is approximately 15 feet high and the basement floor is approximately 6 feet below ground level. A brine loading truck dock is located on the north side of the building, along with the ethylenediaminetetraacetic (EDTA) storage tank and three evaporator cooling towers. A nitric acid storage tank is located outside, near the southeast corner of the building. Three natural gas-powered electrical generators, each in its own enclosure, are located west of the building. Figure 2.2 is a plan view of the building's ground floor, basement, and nearby area.

B910 employs a forced evaporation system to evaporate water from the ITS Diversion portion of the SPP. This consists of a feed system, a vendor-supplied evaporator system, a distillate distribution system, and a concentrated brine system. Also included is a chemical injection system will be used to control pH, when required. The flow is treated with EDTA to reduce scaling.

The evaporator packages separate the feed water into distilled water (distillate) and concentrated brine solution. This process employs three parallel evaporator systems (trains), each with a nominal capacity of 18,000 gallons per day of feed water (computing to a total nominal processing capacity of 54,000 gallons per day). Each train consists of:

- a natural-gas-powered electrical generator (fed by a three-inch line from the Plant supply) which supplies heat and electricity to the evaporator units;
- a vapor compression (VC) evaporator unit;
- a multi-effect, multi stage (MEMS) evaporator unit;
- a cooling tower; and
- associated pumps, valves, instruments, and piping.

Each evaporator train is operated independently to provide maximum flexibility. Once the distillate is condensed, it is transferred to the distillate system and on to the distillate distribution system. The purpose of these systems is to:

- gather and temporarily store the distillate (in Tank 215D);
- sample and verify adequate purity of the distillate; and
- transfer the distillate to either the RFP raw water system or the RFP condensate system for reuse.

After evaporation, the concentrated brine is transferred to the concentrated brine system where it is temporarily stored. When required, the concentrated brine is transferred to a tanker truck at the dock located on the north side of the building and sent to Building 374 for further processing in the Saltcrete process.

Figures 2.3 and 2.4 present a schematic flow diagram and a process block diagram of the evaporator process.

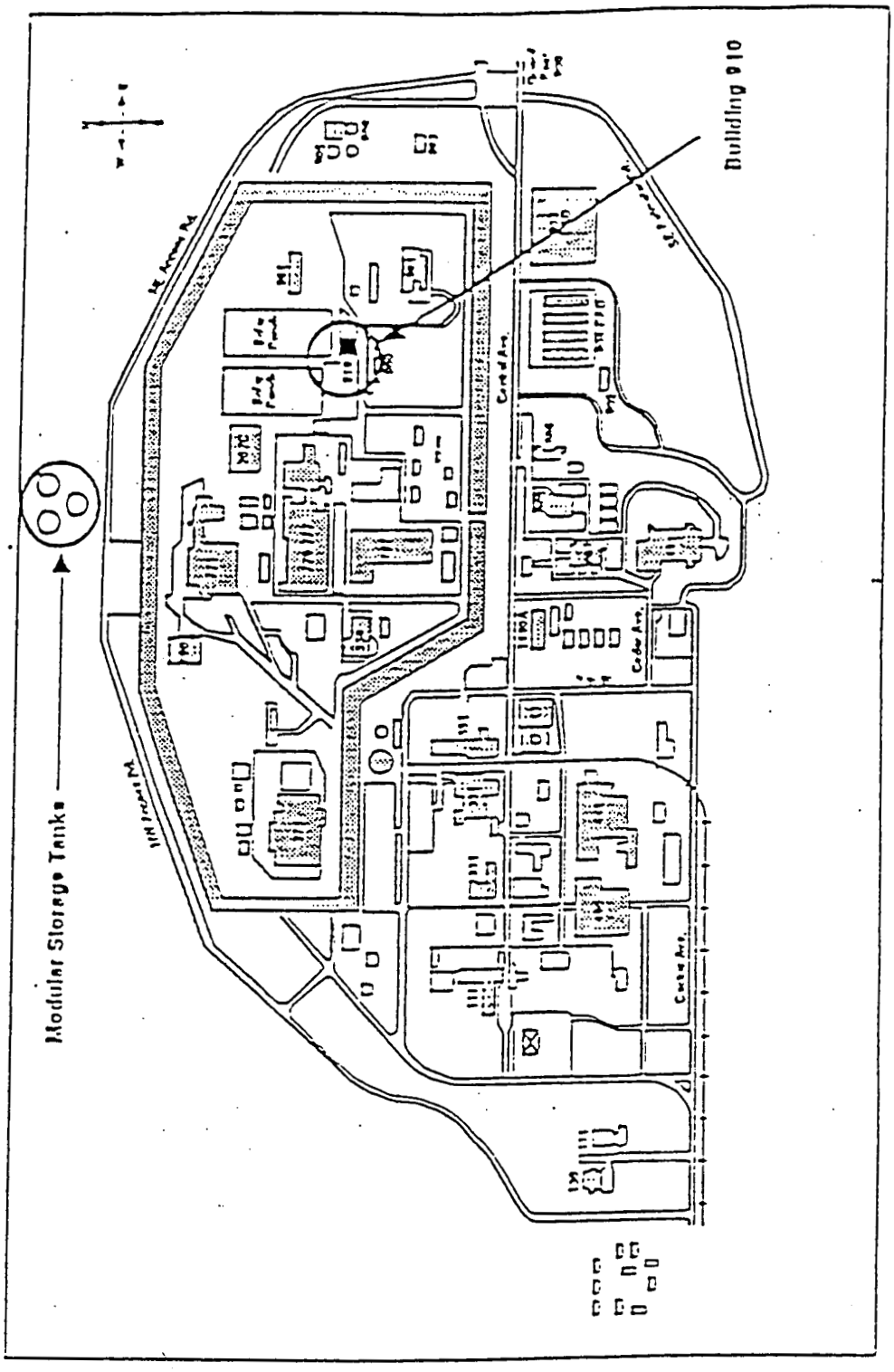

Figure 2.1 -- Relational Location of Building 910

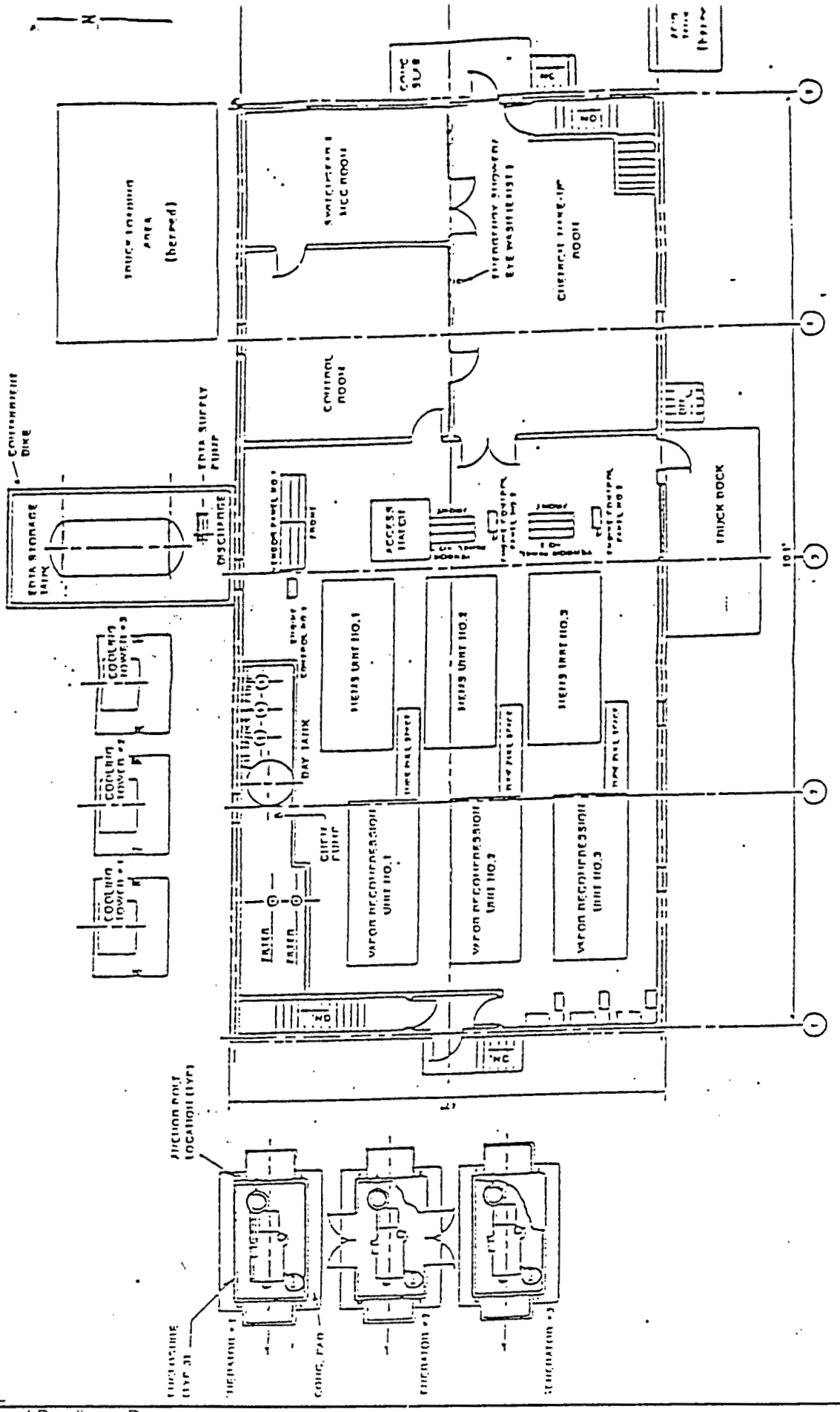

Figure 2.2 -- Plan View of Building 910 and Adjajent Area

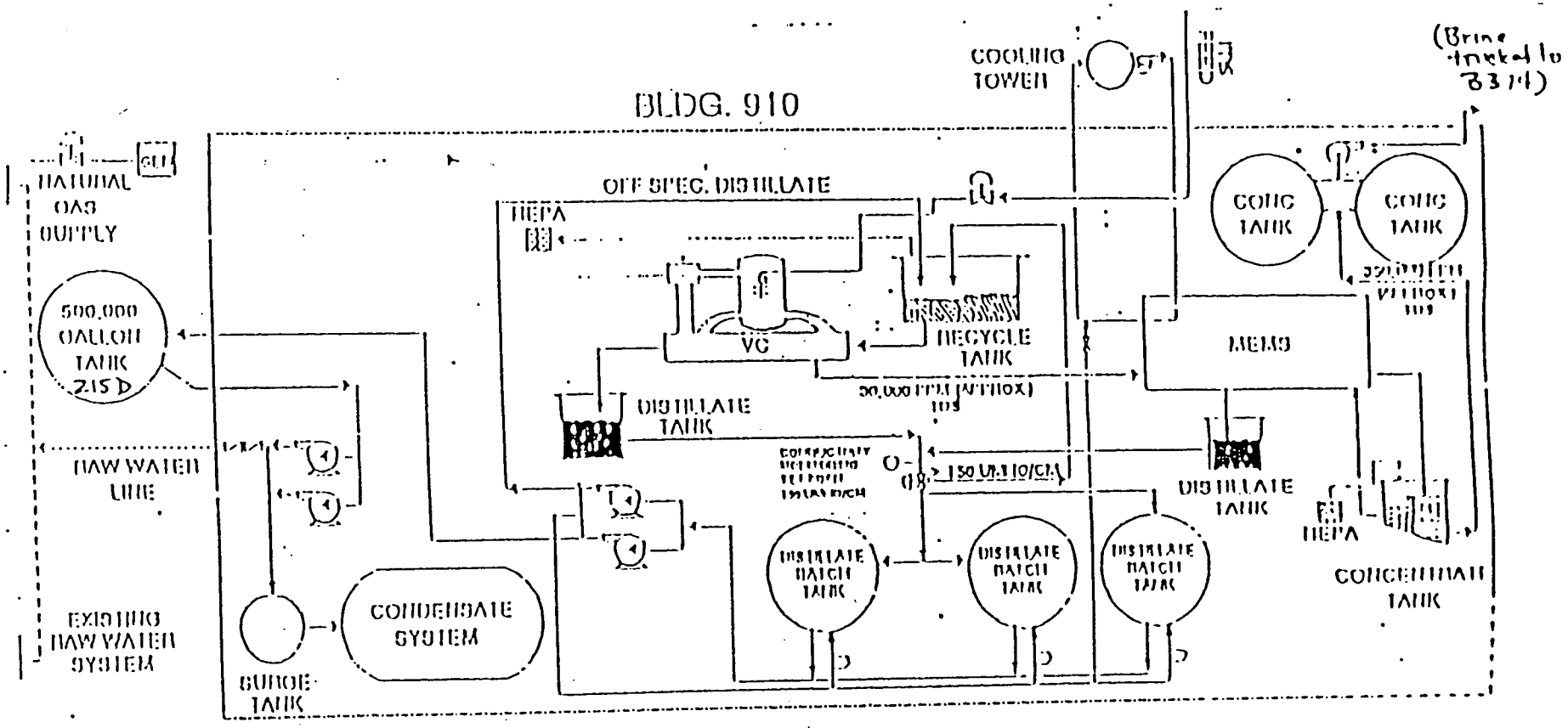

Figure 2.3 -- Schematic Flow Diagram, Building 910 Evaporators Process

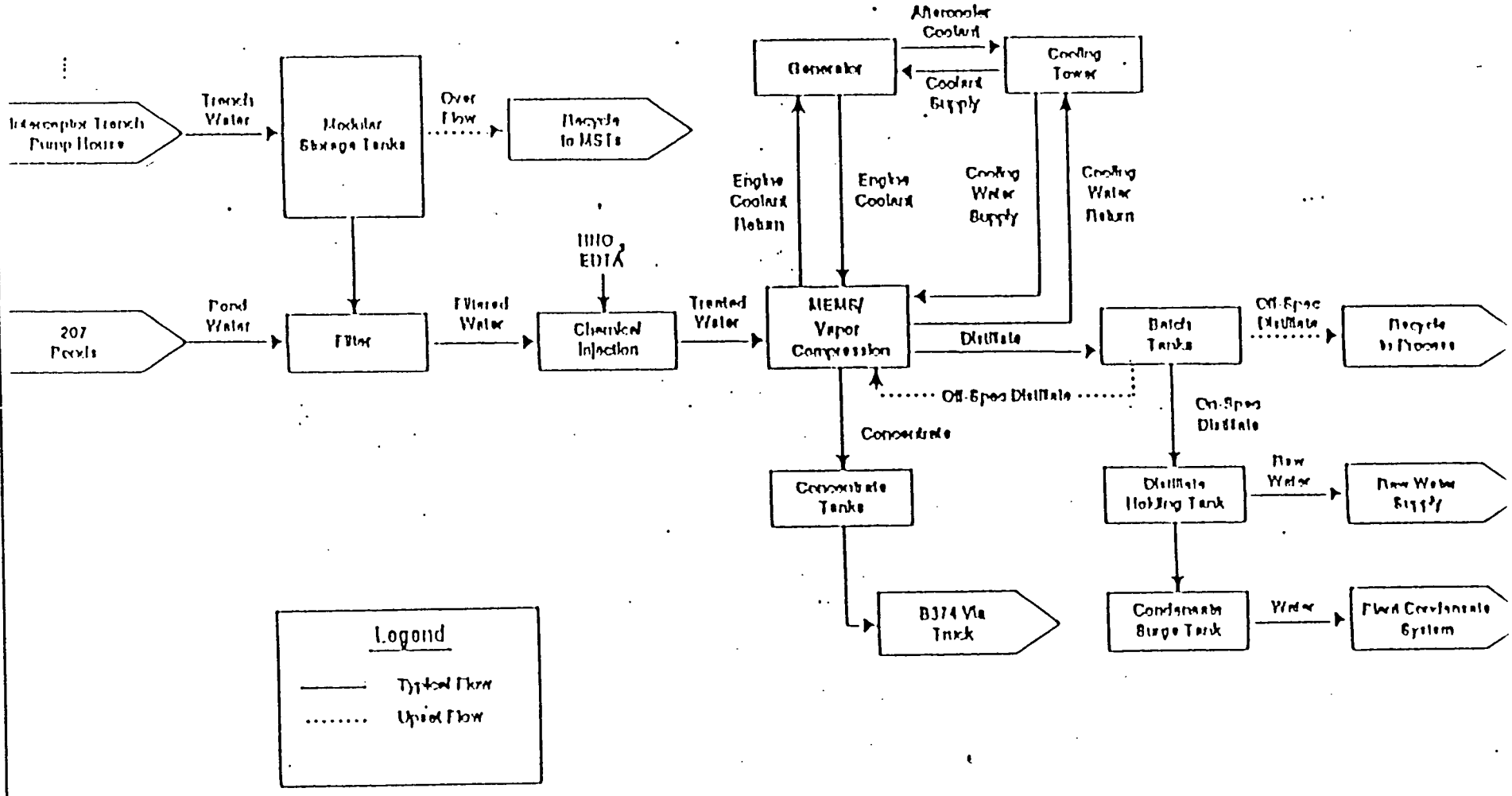

Figure 2.4 -- Building 910 Process Block Diagram

III. ADMINISTRATIVE BOUNDARIES

The SPP has overall programmatic and funding responsibility for all portions of the program. Environmental and Waste Management, Liquid Waste Systems Operations, is responsible for the operational control of the plant liquid waste transfer system that includes B910 (and the evaporators process), the TMSTs, and Building 374. An existing above-ground transfer line (AGTL) to the wall of B374 is under operational control of Waste Solidification Operations.

The administrative controls of the system include baseline documents such as the B910 Final Safety Analysis Report (FSAR), the B910 Health and Safety Plan (HASP), and design documents and drawings. Operation of the system will be controlled under plant wide programs including the Conduct of Operations (COOP), Integrated Work Control Program (IWCP), the Training Users Manual (TUM), and the Conduct of Engineering Manual (COEM), and under operating procedures [reference Section IX of the Self-Assessment Document Matrix, Attachment 1] developed and controlled in accordance with 1-11000-PAPG-001 and -003, and 1-48000-DM-001.

The Self-Assessment scope of readiness has taken credit for implementation of plant wide administrative controls; and the Self-Assessment did not revalidate the effectiveness of these controls. The focus of the Self-Assessment was on project-specific activities and documentation.

IV. GRADED APPROACH TO READINESS ASSESSMENT

A. DOE and RFP Direction

DOE has directed the use of a graded approach for program readiness assessments and evaluations for its facilities. This direction states that the magnitude of documentation and other actions necessary for validating compliance with safety and quality requirements shall be commensurate with the magnitude of the (inherent) hazards and general characteristics of the facility/operation being assessed. In accordance with DOE Order 5480.23, *Nuclear Safety Analysis Report*, the B910 FSAR, Rev. 0, was approved by DOE,HQ (EM-1) on March 25, 1993. The FSAR contains the technical justification for the designation of SPP as Category 3 (low hazard). SPP has followed this DOE direction in developing a graded approach to the B910 Evaporators Self-Assessment.

Also in accordance with DOE direction, the scope statement of RFP Policy 7-25, *Readiness Review*, reads, ". . A graded approach will be utilized . . from the more rigorous RR to the simplest post maintenance inspection, etc., required by the Configuration Change Control Program (CCCP). The existing inspection, testing, training, document update, etc., required by the plant CCCP will be used for all modifications to the plant that are not required to have a RR."

1-11000-ADM-10.01, Rev. 0, *Readiness Review Process*, is the implementing procedure for Policy 7-25. Paragraph 2.3 of the procedure states that the CCCP satisfies the RR (i.e., compliance with the CCCP itself constitutes a graded approach under the definitions and conditions cited). This paragraph states (in parallel with the policy), "The existing inspection, testing, training, and document revision and maintenance requirements of the CCCP [satisfies] the Readiness Review for all plant modifications that are <u>not</u> required to have a formal RR."

The CCCP establishes the requirement for a singular, graded change control program for developing and controlling the configuration and project scope for all new facilities; and, controlling changes to the configuration of all existing facilities, systems, processes, safety related software, and site land at Rocky Flats in accordance with applicable Department of Energy Orders, National Codes, and Industry Consensus Standards. Because of the historical evolution of the CCCP, some, but not all, steps in the B910 reconfiguration were processed in accordance with the CCCP.

B. Key Project Elements

Use of the graded approach further connotes that Key Project Elements (i.e., basic and strategic project aspects) which are definitively controlled by plant wide programs were not as rigorously assessed as those project elements which are not. A graded approach generally imputes compliance in the case of Key Project Elements which were developed and/or extensively controlled under the CCCP as well as other RFP programs such as COOP, IWCP, TUM, and COEM.

The following Key Project Elements were addressed by EG&G's Self-Assessment:

- Building 910 Systems
  A. Organization
  B. Availability of documents
  C. Condition and testing of components
  D. Measuring and test equipment
  E. Effluent monitoring
  F. Equipment labeling and Lockout/Tagout (LO/TO)
  G. LLMW records
  H. Process alarms

- Baseline Safety Documents
  A. Final Safety Analysis Report (FSAR)
  B. Health and Safety Plan (HASP)

- Procedures
  A. Existence and adequacy of procedures for Operations and Emergencies
  B. Control of procedures: Document control and Field Change Orders (FCOs)

- Training of Personnel
  A. Records
  B. On-the-job training
  C. Training effectiveness: Operations; Health and Safety; Emergency Preparedness

- Permits and Compliance
  A. National Environmental Protection Act (NEPA)
  B. Clean Water Act (CWA)
  C. Resource Conservation and Recovery Act (RCRA)
  D. Colorado Department of Health (CDH)

- Secondary Containment
  A. Effectiveness
  B. Decontamination capability

C. EG&G Self-Assessment

SPP employed a qualified Environmental and Waste Management (E&WM) Resumption Support Department Team to perform a Self-Assessment to provide additional verification that the B910 Evaporators are ready for safe operations and are in compliance with applicable regulations. This Self-Assessment employed a graded approach as described above, i.e., the selection of appraisal areas and the depth and detail to which they were appraised were commensurate with the magnitude of the (inherent) hazards and general characteristics of the facility/operation being assessed based upon knowledgeable and prudent evaluation of B910 and its operations. Areas critical to safe operations of B910 and to the protection of health and safety of workers, the public, and the environment received the most detailed review based on a quantitative assessment of risk as documented the B910 FSAR, Chapter 5 and Appendix B.

Use of the graded approach is further evident in the project-specific checklists [reference the SPP Actions Tracking Matrix [Attachment 2]; and the B910 Self-Assessment Plan included in the Self-Assessment Review Package] which cover the Key Project Elements. The primary thrust of the review, evaluation, and validation of the checklists was to ensure the B910 portion of the SPP is capable of performing basic functional tasks as designed.

In accordance with the objectives of the graded approach SPP analyzed the statutes, regulations, and orders applicable to the Water Management portion of the SPP (which includes the B910 operations). These are listed in the Summary of Statutes, Regulations, and Orders Applicable to SPP Water Management [Attachment 3], along with an indication of which *in-scope* Self-Assessment checklists are applicable to certain DOE Orders. Other checklists may have been specific to certain Codes of Federal Regulations (CFRs).

The E&WM Team also reviewed the Key Project Elements [Section IV B] and developed project-specific checklists to assess readiness in the indicated areas. These checklists were reviewed against the SPP Readiness Review Tree in accordance with 1-11000-ADM-10.01, *Readiness Review Process*, and assigned to a box in the tree. If it was deemed necessary to evaluate the readiness of a specific system within the tree for which a regulatory checklist did not exist, the E&WM Team wrote an internal requirement to cover that system. The checklists so developed evaluated the following systems from the SPP Readiness Review Tree:

Structures and Supporting Hardware

- A1 Basic Processing Equipment
  - A1.02 Feed System
  - A1.07 Storage Containers, Tanks, and Vessels
  - A1.09 Equipment Preventive Maintenance
  - A1.10 Process Instrumentation Calibration
- A2 Primary Support System
  - A2.01 Chemical Storage/Transfer Systems
  - A2.09 Visual Inspection Equipment
  - A2.10 Remote Equipment and Alarms
  - A2.11 Mechanical Handling Equipment
  - A2.14 Electrical and Lighting Systems
  - A2.15 Civil and Structural Systems
- A3 Structures and Supporting Hardware Materials
  - A3.01 Process Chemicals
  - A3.03 Modifications/Repairs

A4 Safety Hardware
- A4.01 Evacuation/SAAMs, Alarm Systems and Signs
- A4.04 Verification of Engineered Safety Features
- A4.05 Radiation Monitoring Equipment
- A4.08 Industrial Hygiene and Safety Equipment
- A4.09 Fire Protection Equipment
- A4.12 Safety-Related Instrumentation Identified and Calibrated
- A4.13 Safeguards and Security Equipment

A5 System Interfaces and Other Supporting Hardware
- A5.07 Environmental Equipment
- A5.09 Shipping and Transportation Equipment

Management Controls and Procedures

B1 Procedures and Plans
- B1.01 Administrative Procedures and Records Management
- B1.02 Operating, Procedures and Plans
- B1.03 Data Sheets and Travellers
- B1.04 Fire Protection Programs and Procedures
- B1.05 SO Test/Cold Op Demo/Qualification Test Procedures
- B1.06 Preventative Maintenance Procedures
- B1.07 Instrumentation Calibration Procedures
- B1.08 Maintenance Procedures
- B1.09 Health Physics and Radiation Work Procedures
- B1.10 Analytical/Waste Characterization Procedures
- B1.11 Effluent Monitoring Procedures
- B1.13 Decontamination Procedures
- B1.15 Configuration Change Control Procedures
- B1.16 IWCP Procedures (Work Packages)
- B1.17 Conduct of Operations Procedures
- B1.18 Environmental Compliance Procedures and Permits
- B1.19 Emergency Preparedness and Response Program
- B1.21 DOT Compliance Procedures
- B1.23 Procurement Plans and Procedures

B2 Safety Documentation
- B2.01 Final Safety Analysis Report (FSAR)
- B2.02 Safety Analysis/Nuclear Safety
- B2.03 Criticality Safety
- B2.04 OSR Standard Requirements
- B2.07 Other Plant Safety Documents

B3 Communications Systems and Alarms
- B3.03 Alarms and SAAMs Procedures

B4 Other Administration Controls
- B4.01 As-Built Drawings and Records
- B4.04 Training Materials and Records
- B4.06 EPA/Colorado (CCR) Operating Requirement
- B4.07 Quality Assurance Program
- B4.08 Industrial Safety/Industrial Hygiene Procedures and Programs
- B4.10 Safeguards and Security Program (Access Control, . .)
- B4.11 Lockout/Tagout
- B4.12 Equipment/Instrument Malfunction Tracking System
- B4.13 Non-Conformance System and Reports
- B4.15 Position Qualification Procedures

B4.19 Corrective Action System
B4.20 Engineering/Design Procedures
B4.21 Medical/Occupational Health Program
B4.26 Identification, Packaging, Storage, and Transportation of Waste Procedures
B4.27 Waste Minimization

Personnel Readiness and Training

C1 Training Programs
- C1.02 Operator Training
- C1.05 Maintenance Training
- C1.11 Radiation Worker Training
- C1.13 Criticality Alarm System Training (Plant Program)
- C1.15 Environmental Training
- C1.16 Security Education Training
- C1.17 Safety and OSHA Training
- C1.21 Personnel Readiness Interviews
- C1.23 Sub-Contracted Personnel Training

C2 Operational Support Personnel
- C2.01 Supervisory/Management Personnel
- C2.03 Operations Personnel
- C2.05 Training Personnel

The scope of the Self-Assessment did not include a review of Rocky Flats Plant programs, except to the extent that they are affected by codes, standards, or regulations governing B910 operations. The approved Self-Assessment Plan contains the B910 Evaporators checklists that were placed into scope for the assessment. They are generally traceable to DOE Orders, State and/or Federal regulations (i.e., CFR's and CCR's), or national standards. Objective evidence of compliance was obtained as a result of the checklist validation effort. The documents that support the objective evidence are referenced or attached to the checklists and are included with the checklists in the Self-Assessment Review Package.

D. Observations, Open Items, or Findings

Observations, Open Items, or Findings (as defined in the Self-Assessment Plan) which were identified in the Self-Assessment were delivered to SPP as part of the EG&G Self-Assessment Report written by the E&WM Team. These, along with Findings and Observations from the DOE, RFP-ERD Special Assessment, have been placed into the SPP Actions Tracking Matrix [Attachment 2], which is a part of the Self-Assessment Review Package. When all documentation is completed, a final package will be transmitted to Environmental Restoration Management Document Control in accordance with 3-21000-ADM-06.01, *Document Control,* and 3-21000-ADM-17.02, *Administrative Records Screening and Processing*. Portions of the Self-Assessment Review Package has been periodically transmitted to DOE, RFO ERD, as they have been completed.

In accordance with the Self-Assessment Plan, Open Items and Findings have been categorized by SPP as Pre-Startup and Post-Startup, with disposition as follows.

Pre-Startup -- The closure of those items designated as Pre-Test (prior to Hot System Operation (SO) testing), or Pre-Operational (prior to operation of evaporators) will be expedited, with the SPP Actions Tracking Matrix [Attachment 2] employed for tracking the corrective actions by task, schedule, and responsible party. SPP Project Management will continue to track Pre-Startup items which are not closed as of the date of transmittal of this

Evidence of Readiness Report (June 11, 1993) and closure documentation will be included as a part of the final Self-Assessment Review Package.

Post-Startup -- Those items categorized as Post-Startup (Post-Ops, i.e., after startup of evaporator operations) will be entered into the RFP Performance Action Tracking System (PATS) to ensure that the needed inter-departmental efforts are properly concluded. Documentation of the entry of these items into the PATS will be included as a part of the final Self-Assessment Review Package. [*NOTE:* Post-Startup actions carrying completion dates in the very near-term will not be entered into the PATS, since their actual completion would precede their effective entry into the system.]

E. DOE, RFO-ERD Special Assessment

Concurrent with the EG&G Self-Assessment, DOE, RFO-ERD, conducted an independent overview (Special Assessment). This included a contracted assessment of the current design of the B910 Evaporator systems by a "HAZWRAP" team. Any lack of compliance identified by the DOE Special Assessment which was not already included within the results of the EG&G Self-Assessment were evaluated to determine their classification and status (Pre-Startup or Post-Startup) for inclusion in the SPP Tracking Matrix. In addition, the DOE Special Assessment was planned so as to identify any other areas of concern and/or interest which might not be directly or clearly related to the checklist criteria as developed. Special Assessment Findings are addressed in more detail under Section XII of this Evidence of Readiness Report.

Complete checklist documentation is located in the appropriate sections of the Self-Assessment Review Package, which are named and numbered in the following manner at the request of DOE, RFO ERD. The checklists highlighted in this report are those which remained in scope following deletions for duplications of criteria and/or for reasons of compliance with the objectives of the graded approach. Some checklists may appear more than once in the following listings because some criteria were deemed applicable in more than one discipline/area of operation.

V. PROGRAM MANAGEMENT

Program Management is the generalized assessment area which encompassed the project's overall organization and administration as related to DOE Orders and RFP policies and procedures, as well as project-specific organization and administration. Specific checklist criteria were determined to be applicable in the evaluation of program management elements. These included, among others (the number refers to the *in-scope* checklist citing the stated criteria):

- # 2 - Operations organization and administration effectively implements and controls operations activities; organizational structure is defined
- # 3 - Sufficient permanent operations personnel are involved in startup activities to obtain experience and skills necessary to support future operations
- # 59 - Procedures are in place to identify all documents for protecting sensitive information and protect sensitive unclassified information
- # 60 - Procedures are in place to account for and report all reportable quantities of nuclear materials to the appropriate RFP Safeguards representative
- # 61 - Personnel have completed the required Security Training for RFP
- # 62 - B910 meets the physical protection requirements regarding protection of DOE property and unclassified facilities
- # 63 - Unclassified computer systems and automated information and software is protected by appropriate security measures
- # 64 - Responsibilities for operations personnel are defined during security and safeguards emergencies
- # 65 - Security and safeguards improvements do not create or increase hazards impeding safe operations or shutdown during normal, abnormal, or emergency shutdowns
- # 128 - Project has an effective organizational structure to ensure proper operations

VI. REGULATORY COMPLIANCE

Because of the impact and visibility of the SPP as an environmental project, and given the priority placed on the SPP by both DOE and EG&G, formulation of the graded approach to the Self-Assessment placed special emphasis on environmental and regulatory compliance issues. Specific checklist criteria were determined to be applicable in the evaluation of environmental / regulatory elements. These included, among others (the number refers to the *in-scope* checklist citing the stated criteria):

- # 33 - LLW is characterized with sufficient accuracy to permit proper segregation, treatment, etc.; Characteristics and major radionuclide contents are recorded at all stages of waste management process

- # 93 - Emergency and hazardous waste operations program is implemented and meets the requirements of 29 CFR 1910.120
- #159 - Miscellaneous waste disposal records are maintained for such activities as transfer operations, in-tank solidification, etc.
- # 187 - All IM/IRA activities are properly permitted, allowed, and in accordance with the IAG, CHWA, CERCLA, SARA, RCRA, NCP, and other applicable regulations
- # 188 - Facilities, operations, and interim actions comply applicable federal and state and appropriate requirements (ARARs) and are protective of human health and the environment
- # 191 - Procedures are in place and people are aware of reporting and response requirements according to EPCRA and the major environmental regulations
- # 192 - Project is compliant with plant sampling and analytical programs/plans
- # 195 - Compliance with the Clean Water Act
- # 196 - Compliance with Clean Air Act and applicable Colorado Air Quality Regulations
- # 199 - All necessary NEPA actions have been addressed
- # 278 - Proper waste acceptance criteria have been developed for treatment, storage, and disposal facilities
- # 279 - Development of treatment facilities has been supported by Nepa documentation, stream analysis and options, construction design report, FSAR
- # 281 - Facility environmental monitoring program conforms to DOE 5484.1 for Low Level Mixed Wastes
- # 283 - "Cradle to grave" record system is developed for LLW
- # 301 - Gas fired water heaters and generator units carry permit number, comply with annual limits, measure gas usage by meter, and notify APCD 30 days prior to permitted operation
- # 302 - Gas fired generator units comply with prescribed limitations on emissions of air pollutants
- # 303 - Gas fired water heaters comply with prescribed limitations on emissions of air pollutants
- # 309 - Appropriate consideration has been given to the environmental effects of the operations, and detailed environmental statements have been prepared
- # 310 - Waste samples collected for testing are handled in accordance with 40 CFR 261
- # 311 - EPA hazardous waste number used in complying with notification requirements of § 3010 of RCRA and applicable record keeping and reporting requirements of 40 CFR
- # 312 - At least one employee responsible for coordinating emergency responses will be on the premises or on call at all times, in accordance with 40 CFR 262 ¶ 262.34 (d) (5) (iv)
- # 314 - Notice of discharges will be made (telephonically) in accordance with 33 CFR 153 Subpart B, and 40 CFR 302
- # 315 - Responsible operator will notify National Response Center in accordance with 40 CFR 302
- # 316 - NEPA implementation complies with 40 CFR 1500.2
- # 317 - An environmental assessment or an environmental impact statement has been prepared by DOE in accordance with 40 CFR 1507.3
- # 318 - A FONSI has been prepared by DOE
- # 319 - DOE has issued a record of decision as required by NEPA
- # 320 - DOE has made diligent efforts to involve the public in preparing and implementing its NEPA procedures
- # 325 - Emissions do not exceed the standards outlined in III.A.1 of 5 CCR 1001-3
- # 327 - An APEN has been filed with CDH, unless exempted under Reg. 3.II.C
- # 328 - Emissions do not exceed any standard of any NAAQS in any attainment area
- # 329 - A valid emission permit has been obtained from CDH
- # 345 - A written operating record is kept in accordance with 40 CFR 265, § 265.73(b)

- # 354 - If operations are not covered by 40 CFR, ¶ 1501.4(a), DOE will prepare an environmental assessment
- # 356 - Written notice of operations has been provided to CDH on From 8700-12
- # 357 - Facility has an effective State RCRA permit

VII. FACILITY/EQUIPMENT DESIGN

Design requirements are specified in the Interim Measure/Interim Remedial Action (IM/IRA) Decision Document for the Solar Evaporation Ponds, Operable Unit No. 4, the Operational Requirements Document (ORD), and the Design Criteria. The Design Criteria include applicable Rocky Flats Plant Standards and applicable sections of DOE 6430.1A.

EG&G and its subcontractors followed applicable Rocky Flats Plant Standards as identified in the SPP Water Management Document Tree. The design of the evaporator systems was performed by Licon, Inc. The Title ll Construction package was completed in accordance with approved design criteria as identified in accordance with the appropriate COEM procedures.

A number of the Key Project Elements [Section IV B] were identified as applicable for the appropriate (graded) level of design assessment. The EG&G implementing policies and procedures for the requirements contained within the checklists are identified in the SPP Water Management Document Tree. Therefore, the assessment included a review of the specific processes required by the implementing documents and assessment as to the adherence to those processes.

A. EG&G Design and Construction Management Processes

Those design efforts which supported the B910 evaporators were completed and reviewed internally per applicable COEM procedures. Design review was conducted in accordance with the requirements of the COEM, except as noted in the Findings of the Self-Assessment. Although CCCP and COEM procedures (under those names) may not have been in effect at the time the supporting design and equipment specifications were issued, the then applicable procedures were later incorporated into the COEM. All subsequent change orders and scope changes were completed in accordance with COEM procedures, except as noted in the Findings of the Self-Assessment.

Construction work performed at RFP is controlled by essentially two documents. The Conduct of Engineering Manual (COEM) guides the control of subcontract activities from budget and configuration standpoints. The Integrated Work Control Program (IWCP) guides actual field construction activities from primarily Health and Safety, and Quality standpoints. The two documents are not mutually exclusive, and some overlap of direction, guidance, and control exists.

COEM: The management of construction activities is directed in accordance with COEM procedures. Procedures contained in the COEM guide various Construction Management practices including: Field Change Orders (FCOs) for Fixed Price Subcontracts, Submittal Tracking, Weekly Construction Summary Reports, Daily Logs, Project Acceptance and Transfer (PA&T), Processing of Subcontract Pay Applications, and other Construction Management related (CSP) procedures. The COEM specifies how Construction Management is performed at RFP.

IWCP: All construction work performed at RFP is controlled by the IWCP. The work performed for the installation of the B910 evaporators and related systems was controlled by IWCP packages. These packages outlined the work steps necessary to perform the subcontract work safely, and to provide for proper inspection of the work. These packages have been closed out, except in instances identified as Findings or Open Items by the Self-Assessment. The IWCP packages have been revised as necessary to accommodate design and administrative changes to the various construction subcontracts.

B. Subcontractor Design and Construction Processes

The procurement of the subcontracts included in the B910 Evaporators project was accomplished under guidance of Federal Acquisition Regulations and DOE Acquisition Regulations as administered by EG&G Subcontract Procurement Department. The subcontractors were bound by the requirements of the project specifications.

The design and construction of the B910 evaporators was performed by Licon, Inc., and its sub-contractors, under sub-contract to EG&G. No formal (EG&G) processes/procedures were utilized by Licon. The requirements and applicable standards, e.g., ANSI/ASME B31.3, NEC, etc., were summarized in the procurement documents.

Installation of the B910 evaporators was performed by J. A. Jones, Inc., under applicable Engineering Orders (EOs), and in accordance with the requirements of the CCCP, COEM, and IWCP programs.

The Self-Assessment checklists evaluated Key Project Elements as stated Section IV B above. It did not evaluate RFP programs that control construction. Validation of checklists for Engineering design evaluated whether the constructed product meets the design drawings, specifications, and standards. Control of the actual construction was governed by IWCP, CCCP, OSHA, 29 CFR-1925, COEM, and various other RFP implementing documents.

A Checklist Identification Matrix was developed to show the relationship of the checklists to the Readiness Review Tree System. The Tree System Name identifies the specific system(s) evaluated for each checklist under each specific discipline. Specific checklist criteria determined to be applicable in the evaluation of facility and equipment design elements included, among others (the number refers to the *in-scope* checklist citing the stated criteria):

- # 6 - Documents, drawings, and other operator references are readily available, authorized, and properly controlled
- # 12 - Human factors considerations were incorporated into the design, layout, and operation of the facility
- # 42 - Natural gas engine system has been designed, installed, alarmed, and tested to insure proper gas pressures and temperatures inside the building
- # 46 - Modifications to B910 provide practical safeguarding of persons and property from electrical hazards
- # 47 - Modifications to B910 provide practical safeguarding of persons and property from lightning hazards
- # 50 - Automatic sprinkler system is adequately design and properly installed
- # 72 - Marked-up drawings reflecting the as-built configuration are available in the field prior to operation
- # 76 - An effective design control program has been implemented; Filed changes required prior to operation received the same level of review as original design (in accordance with DOE Orders)

- # 77 - An effective design control program has been implemented; A Special Fire Protection Design Analysis was performed and is available or included in the FSAR
- # 78 - An effective design control program has been implemented; An effective review and resolution system is available for H&S, E&WM, Engineering/Fire Protection, Quality, Nuclear Safety
- # 79 - An effective design control program has been implemented; Design process meets COEM parameters for input, analysis/calcs, verifications, and modifications
- # 91 - Material handling system has been effectively implemented
- # 92 - Pressure safety program has been implemented
- # 222 - Wall and floor coatings and covering are in good condition and assist in controlling contamination
- # 242 - Fixed ladder design is in accordance with 29 CFR 1910.27
- # 276 - Waste minimization aspects have been included in the design
- # 331 - Tank system has been assessed for proper design, structural integrity, waste compatibility, and corrosion protection
- # 348 - Written assessment has been obtained stating the acceptability of the tank system, per 40 CFR 265 § 265.192 (a)-(g)
- #400 - LLMW is collected and monitored near source before batch transfers; system provides for adequate mixing, sampling, measuring, and levels detection

VIII. FACILITY/EQUIPMENT TEST AND QUALITY ASSURANCE

A. Testing

Testing was divided into three distinct phases: Construction Inspection Testing, Construction Component Testing, and SO Testing. Construction Inspection Testing verified that proper construction practices were followed and proper material were used. Construction Component Testing verified installation completeness. SO Testing verified that the complete system operates as designed.

Testing was defined, planned, and executed under the requirements of the IWCP. The IWCP work packages either wholly defined step-by-step testing procedures, referenced testing requirements defined in the design documentation, or referenced specifically developed, external test procedures. Performance of the testing requirements was verified through IWCP requirements for project closure.

Construction Inspection Testing and Construction Component Testing requirements were defined in the design documentation developed under COEM. Activities performed to conduct the tests, collect and preserve data, and verify test conduct were controlled by the IWCP. Additionally, specific Construction Inspection Testing was performed in accordance with applicable ASTM methods, which were incorporated into the appropriate RFP test document. COEM Procedure CSP-24 established additional verification requirements for Construction Component Testing.

SO Testing requirements were defined in the design documentation developed under COEM. The test procedures were developed in accordance with applicable IWCP and COEM procedures. Configuration change control was managed through the Configuration Change Control Program (CCCP) program. Refer to Section IV A above for a broad definition of the CCCP.

Testing boundaries are the same as those described for the physical boundaries [Section II]. The following areas were tested:

- Evaporators, Vapor Compressors (VCs)
- Evaporators, Multiple Effect Multiple Stage (MEMS)
- Generators
- Cooling towers
- All instrumentation
- Feed system
- EDTA System
- Brine system
- Distillate system
- Life Safety / Disaster Warning (LS/DW) system
- Fire protection system

B. Quality Assurance

The Interim Measure/Interim Remedial Action for the Solar Evaporation Ponds, Operable Unit 4, Decision Document - Quality Assurance Addendum (QAA), approved May 20, 1993, delineates the quality assurance (QA) requirements, and specific measures for implementing these requirements as they are applicable to the OU4 IM/IRA. The QAA is limited to the retrofitting of B910 to house the evaporation treatment system components and the inspection/ testing of existing equipment; and the installation and acceptance of the portable flash evaporators and associated holding tanks and piping to treat excess solar pond liquids and ITS water. Section 5.0 of the QAA, Project Description, further describes these activities.

The objective of the QAA is to ensure that QA requirements applicable to the B910 Evaporators are identified and processes are controlled, proceduralized, and documented. Requirements of the RFP Quality Assurance Manual were applied to the B910 Evaporators activities to degrees commensurate with their categorization and classification.

A listing of the applicable criteria (in accordance with DOE 5700.6C) is contained in the Criteria Compliance Matrix, Table 1 within the QAA. The QAA also identifies the quality requirements applicable to the B910 Evaporators. These quality requirements have been applied to the project activities in a manner consistent with the graded approach as described previously.

The Self-Assessment checklists evaluated Key Project Elements as stated in Section IV B above. SO Test Plans and results were reviewed during the validation of some of the checklists. SO Tests are a sub-category of the key elements evaluated for Engineering, Environmental Management, Procedures, Quality, and Operations. The assessment included a review of the specific processes required by the applicable implementing documents as identified in the SPP Water Managment Document Tree and an assessment as to the adherence to those processes.

A Checklist Identification Matrix was developed to show the relationship of the checklists to the Readiness Review Tree System. The Tree System Name identifies the specific system(s) evaluated for each checklist under each specific discipline. Specific checklist criteria were determined to be applicable in the evaluation of the testing and QA elements. These included, among others (the number refers to the *in-scope* checklist citing the stated criteria):

- # 68 - SO testing, planning, and control were comprehensive, all-inclusive, implemented effectively, and properly accepted
- # 120 - Nonconforming items are reported in the proper systems and corrective actions are taken

- # 121 - Materials used in quality related aspects have been handled, stored, and shipped in accordance with quality requirements
- # 123 - Inspection steps are included in the IWCP packages used to control the work
- # 126 - Project is controlled via instructions, procedures, and drawings, including the IWCP
- # 127 - Procurement of services and materials were performed in accordance with the PQE Manual and procurement documents are controlled
- # 192 - Project is compliant with plant sampling and analytical programs/plans
- # 222 - Wall and floor coatings and covering are in good condition and assist in controlling contamination
- # 229 - Procedures are technically and administratively adequate and provide necessary guidance for emergency response, shut down, and restoration
- # 264 - Out-of-calibration devices are tagged or segregated and not in use until recalibration
- # 266 - Handling, storage, and shipment of items is conducted in accordance with established work and inspection instructions, drawings, etc., specified for use in conducting the activity
- # 288 - Nitric Acid Storage Tank H/L Level Alarms operate properly and alarms are being received at all alarm terminals as required
- # 289 - Concentrated Brine Storage Tanks (D9 & D18) H/L Level Alarms operate properly and alarms are being received at all alarm terminals as required
- # 290 - Concentrated Surge Tank (D10) H/L Level Alarms operate properly and alarms are being received at all alarm terminals as required
- # 291 - Distillate Holding Tank (215D) H/L Level Alarms operate properly and alarms are being received at all alarm terminals as required
- # 292 - Distillate Batch Tanks (D-2, D-6, and D-7) H/L Level Alarms operate properly and alarms are being received at all alarm terminals as required
- # 293 - EDTA Storage Tanks H/L Level Alarms operate properly and alarms are being received at all alarm terminals as required
- # 294 - Drain System Sump Pump H/L Level Alarms operate properly and alarms are being received at all alarm terminals as required
- # 296 - Tanker Truck High Level Alarms operate properly to preclude overfilling and alarm is being received at all alarm terminals as required
- # 297 - Leak Detection Alarms for Ponds 207A and 207B operate properly and alarms are being received at all alarm terminals as required
- # 298 - Differential Pressure Filter Pump Alarms for Ponds 207A and 207B operate properly and alarms are being received at all alarm terminals as required
- # 299 - Natural Gas Engine System Alarms operate properly and alarms are being received at all alarm terminals as required
- # 300 - MEMS and VC-related Alarms operate properly and alarms are being received at all alarm terminals as required
- # 336 - Tightness tests conducted on all tanks and ancillary equipment per CCR 265
- # 338 - Appropriate controls are in place to prevent spills and overflows from tank or containment systems
- # 340 - Detailed chemical and physical analysis of representative waste sample has been obtained in accordance with 40 CFR 265.113 (d)
- # 342 - Written schedule for equipment and facility inspection in place for malfunctions, operator errors, and discharges
- # 361 - (Gas) safety shutoff has been checked for proper operation and adjustment

IX. FACILITY/EQUIPMENT OPERATIONS

At an upper level, the requirements for operation of the B910 evaporators are outlined in three documents:

- Building 910 Final Safety Analysis Report (FSAR) -- The FSAR analyzes the operation of B910 and the TMSTs and establishes operating parameters that ensure the safe operation of the facility. The FSAR provides the hazard classification of the facility (Category 3, low hazard), accident analysis, and Technical Safety Requirements that provide measures necessary to protect the safety risk envelope.

- Operable Unit No. 4 IM/IRA -- The IM/IRA Decision Document for OU4 is the mechanism for permitting the use of the proposed activity to facilitate implementation of the Solar Evaporation Ponds RCRA partial closure action.

- The RFP Conduct of Operations (COOP), which provides for overall operating requirements.

Process control documents include:

- B910 Health and Safety Plan
- Operational Safety Analysis (OSA) 910.001, Building 910 Evaporator Process, prepared in accordance with HSP 2.03, "Operational Safety Analysis."
- 4-22PEP-910-001, "Portable Waste Treatment Evaporator Line-up Check-off List"
- 4-22PEP-910-002," EDTA Addition"
- 4-22PEP-910-003, "Nitric Acid Addition"
- 4-22PEP-910-004, "Evaporator Feed System
- 4-22PEP-910-005, "Unit 1, 2 and 3 Evaporators"
- 4-22PEP-910-008, "Distillate System"
- 4-22PEP-910-009, "Concentrate System"
- 4-22ARP-101-MCP," B910 Main Control Panel Alarm Response Procedures"
- 4-22ARP-101-ANN," B910 Annunciator Panel Alarm Response Procedures"
- 4-22ARP-101-AA910," B910 Alarm Annunciator Panel Alarm Response Procedures"
- 4-22ARP-101-MEMS," B910 MEMS Alarm Response Procedure"
- 4-22ARP-101-VC," B910 VC Alarm Response Procedure"
- 4-22ARP-101-CIA-1108," Ponds Leak Detector Alarm Response Procedure"
- 4-30000-FO-001, "Decontamination"

Operating procedures have been developed and controlled in accordance with the following documents:

- 1-11000-PAPG-001, "Technical Procedures Preparation Process"
- 1-11000-PAPG-003, "Procedure Writing Guide for Technical and Administrative Procedures"
- 1-48000-DM-001, "Document Control Program"

The Self-Assessment checklists evaluated Key Project Elements as stated in Section IV B above. Operations covers a number of the Key Project Elements identified as necessary for review, in the following disciplines: Procedures, Training, Process Alarms, Records Management, Health and Safety, and compliance to Environmental Management and Waste Management regulations. The assessment included a review of the specific processes required by the applicable implementing

documents as identified in the SPP Water Managment Document Tree and an assessment as to the adherence to those processes.

A Checklist Identification Matrix was developed to show the relationship of the checklists to the Readiness Review Tree System. The Tree System Name identifies the specific system(s) evaluated for each checklist under each specific discipline. Specific checklist criteria were included within the evaluation of facility and equipment operations elements. These included, among others (the number refers to the *in-scope* checklist citing the stated criteria):

- # 4 - Operations organization and administration effectively implements and controls operations; Required reading files and/or shift meetings used to communicate important matters
- # 5 - Operator shift duties limited to activities that support safe and reliable operations
- # 6 - Documents, drawings, and other operator references are readily available, authorized, and properly controlled
- # 9 - Each operator can properly and correctly interpret chemical or process parameters to provide appropriate, timely corrective action
- # 11 - Turnover for each shift ensures effective, accurate transfer of information
- # 12 - Human factors considerations were incorporated into the design, layout, and operation of the facility
- # 15 - Maintenance activities are conducted in a safe and effective manner
- # 16 - Facilities, equipment, and materials support performance of maintenance activities
- # 18 - Components and equipment maintained in a condition to support safe and effective operation
- # 20 - Maintenance history records are properly maintained
- # 25 - Locks and tags are employed for personnel and equipment protection and configuration control; LO/TO procedures are employed
- # 26 - Sufficient materials are available to support activities
- # 30 - Operations organization and administration effectively implements and controls operations; Responsibilities for each position are defined
- # 51 - Fire exit drills are conducted with sufficient frequency and under conditions which simulate unusual conditions
- # 155 - Log book is maintained to provide concise summary of daily activities concerning unusual incidents, etc.
- # 159 - Miscellaneous waste disposal records are maintained for such activities as transfer operations, in-tank solidification, etc.
- # 226 - Periodic inspection and maintenance programs are in place for all mechanical/ engineered control systems
- # 229 - Procedures are technically and administratively adequate and provide necessary guidance for emergency response, shut down, and restoration
- # 237 - Controlled annunciator response procedure information is easily accessible to responsible operators
- # 238 - Equipment panels are periodically checked and appropriate backup systems are in place
- # 239 - Operating personnel are alert and attentive to indicators and alarms, and response is prompt
- # 264 - Out-of-calibration devices are tagged or segregated and not in use until recalibration
- # 267 - Special handling tools and equipment are utilized and controlled as necessary to ensure safe and adequate handling
- # 269 - Shipper will visually survey equipment to ensure readiness for shipment before loading on a transport vehicle
- # 270 - Reasonable precautions will be taken to prevent undesired motion during loading and unloading

- # 272 - Shipment of wastes shall be in compliance with DOE 5480.3 an, appropriate DOT regulations, and NRC standards (10 CFR 71)
- # 273 - Operating procedures (transportation) are established and will be maintained, including regular and periodic inspection
- # 288 - Nitric Acid Storage Tank H/L Level Alarms operate properly and alarms are being received at all alarm terminals as required
- # 289 - Concentrated Brine Storage Tanks (D9 & D18) H/L Level Alarms operate properly and alarms are being received at all alarm terminals as required
- # 290 - Concentrated Surge Tank (D10) H/L Level Alarms operate properly and alarms are being received at all alarm terminals as required
- # 291 - Distillate Holding Tank (215D) H/L Level Alarms operate properly and alarms are being received at all alarm terminals as required
- # 292 - Distillate Batch Tanks (D-2, D-6, and D-7) H/L Level Alarms operate properly and alarms are being received at all alarm terminals as required
- # 293 - EDTA Storage Tanks H/L Level Alarms operate properly and alarms are being received at all alarm terminals as required
- # 294 - Drain System Sump Pump H/L Level Alarms operate properly and alarms are being received at all alarm terminals as required
- # 296 - Tanker Truck High Level Alarms operate properly to preclude overfilling and alarm is being received at all alarm terminals as required
- # 297 - Leak Detection Alarms for Ponds 207A and 207B operate properly and alarms are being received at all alarm terminals as required
- # 298 - Differential Pressure Filter Pump Alarms for Ponds 207A and 207B operate properly and alarms are being received at all alarm terminals as required
- # 299 - Natural Gas Engine System Alarms operate properly and alarms are being received at all alarm terminals as required
- # 300 - MEMS and VC-related Alarms operate properly and alarms are being received at all alarm terminals as required
- # 312 - At least one employee responsible for coordinating emergency responses will be on the premises or on call at all times, in accordance with 40 CFR 262 ¶ 262.34 (d) (5) (iv)
- # 314 - Notice of discharges will be made (telephonically) in accordance with 33 CFR 153 Subpart B, and 40 CFR 302
- # 315 - Responsible operator will notify National Response Center in accordance with 40 CFR 302
- # 342 - Written schedule for equipment and facility inspection in place for malfunctions, operator errors, and discharges
- # 344 - Operating contingency plans are in place
- # 345 - A written operating record is kept in accordance with 40 CFR 265, § 265.73(b)

X. SAFETY

The safety basis is established by FSAR, which establishes the B910 facility as Category 3 (Low Hazard). § 1.4.2 of the FSAR summarizes the hazard classification of the facility, accident analysis, and Technical Safety Requirements that provide measures necessary to protect the safety risk envelope.

A detailed hazards and failures analysis of the B910 systems and processes was performed. After screening and ranking a set of identified sequences consisting of 1) natural gas leak/deflagration, 2) process solution leaks, and 3) process solution spills were selected and quantitatively analyzed. A Beyond the Design Basis (severe) Accident (BDBA) scenario was postulated and analyzed to

bound the potential consequences from any B910 accidents. The results of these occurrence analyses are summarized in Table 1.4-1 of the FSAR. Comparison of the consequences of a BDBA to the hazard class criteria of (DOE-RFO91) in Table 1.4-2 of the FSAR confirms a Category 3 (low hazard) classification of the B910 operations.

Specific checklist criteria were included within the evaluation of safety elements. These included, among others (the number refers to the *in-scope* checklist citing the stated criteria):

- # 1 - A system is in place to ensure that the facility complies with all TSRs
- # 33 - LLW is characterized with sufficient accuracy to permit proper segregation, treatment, etc.; Characteristics and major radionuclide contents are recorded at all stages of waste management process
- # 40 - A fire protection system is designed, installed, and maintained
- # 41 - All flammable and combustible liquids stored and used in accordance with personnel and building safety and fire protection
- # 42 - Natural gas engine system has been designed, installed, alarmed, and tested to insure proper gas pressures and temperatures inside the building
- # 43 - B910 sprinkler system included in RFP Fire Department inspection, testing, and maintenance program
- # 44 - Recommended procedures are incorporated for acceptance and periodic testing of equipment by qualified (knowledgeable) persons
- # 46 - Modifications to B910 provide practical safeguarding of persons and property from electrical hazards
- # 47 - Modifications to B910 provide practical safeguarding of persons and property from lightning hazards
- # 48 - Portable fire extinguishers have been selected, as required, for the inside of B910 and outside, at the natural gas-fired engine system
- # 49 - Proprietary Protective Signaling System meets applicable requirements for installation, maintenance, and testing
- # 50 - Automatic sprinkler system is adequately design and properly installed
- # 51 - Fire exit drills are conducted with sufficient frequency and under conditions which simulate unusual conditions
- # 52 - Fire alarms are provided to warn occupants of B910
- # 53 - Exits and floor transitions are of proper design and placement to provide reasonable escape and safety for occupants
- # 54 - Exits are of proper design and placement to provide reasonable escape and safety for occupants; Two are provided when size, occupancy, and/or arrangement endangers occupants attempting to use single means of egress
- # 55 - Exits are of proper design and placement to provide reasonable escape and safety for occupants; Artificial illumination is provided
- # 57 - Exits are of proper design and placement to provide reasonable escape and safety for occupants; Doors and assemblies are designed/constructed so as to be obvious and direct means of exit and cannot be confused with non-exits
- # 58 - Exits are of proper kinds, numbers, locations, and capacities to afford escape; Exits are free and unobstructed
- # 88 - Adequate lighting is available for operations
- # 89 - Emergency eyewashes and showers have been installed in accordance with ANSI Z-358.1
- # 90 - Moving parts of equipment are properly identified and guarded in accordance with 29 CFR 1910
- # 91 - Material handling system has been effectively implemented
- # 92 - Pressure safety program has been implemented

- # 93 - Emergency and hazardous waste operations program is implemented and meets the requirements of 29 CFR 1910.120
- # 95 - Industrial Hygiene, Occupational Safety, Rad. Protection, and H&S Engineering Support programs have been implemented
- # 102 - Monitoring data is regularly obtained for H&S concerns and is utilized in determining effectiveness of controls
- # 108 - Proper personnel protective equipment is available, use is enforced, and training provided
- # 109 - Operations are in compliance with OSHA for danger, warning, and safety information signs
- # 111 - Operations are in compliance with OSHA for ladders, guard rails, floor and wall openings, and fall protection
- # 112 - Operations are in compliance with OSHA for equipment and component labeling
- # 114 - Operations are in compliance with OSHA for electrical safety procedures and requirements
- # 117 - Personnel have been adequately informed of chemical, physical, and biological stresses which may be encountered in the work environment
- # 164 - Individual employee radiation exposure records are properly maintained
- # 168 - Records of personnel exposure to hazardous materials/toxic chemicals are properly maintained
- # 169 - Records are established for the history of the portable fire extinguishers
- # 171 - Routine safety inspection records are maintained by the responsible department
- # 176 - Emergency plan and its implementing procedures provide effective response to operational emergencies
- # 201 - A criticality safety evaluation has been performed
- # 203 - Preliminary and final Safety Analysis Reports (SARs) have been developed and completed
- # 219 - The SAR preparation and review ensures systematic identification of hazards
- # 242 - Fixed ladder design is in accordance with 29 CFR 1910.27
- # 258 - A hearing conservation program has been implemented
- # 260 - All employees have completed the required OSHA training
- # 267 - Special handling tools and equipment are utilized and controlled as necessary to ensure safe and adequate handling
- # 330 - Proper precautions have been taken to prevent accidental ignition or reaction of ignitable or reactive wastes
- # 332 - Facilities have a 24-hour surveillance system, unless exempted by 6 CCR 1007-3
- # 333 - "Danger--Unauthorized Personnel Keep Out" signs have been properly posted
- # 341 - Provisions have been made to prevent/minimize the possibility of unknowing/unauthorized entry of persons or livestock
- # 344 - Operating contingency plans are in place
- # 355 - Airborne radiation and radioactive materials discharges have been/are assessed and monitored in compliance with 40 CFR, Part 61

XI. TRAINING

All operator training for the B910 evaporators operations has been and will be performed in accordance with the Qualification Standard Package: Building 910 Evaporator Process -- Task Analysis Report: B910 Chemical Operator (Treatment) 910 Evaporator Process. The task qualification documents were prepared in accordance with the requirements established in the Training Users Manual (TUM). The task of operating the B910 evaporators is described in fifteen technical operating procedures. Operators are required to attend classroom training and have completed On-The-Job Training (OJT) as developed from the technical operating procedures. In addition, applicable CORE training for each operator is required prior to process qualification.

Specific checklist criteria were included within the evaluation of training elements. These included, among others (the number refers to the *in-scope* checklist citing the stated criteria):

- # 3 - Sufficient permanent operations personnel are involved in startup activities to obtain experience and skills necessary to support future operations
- # 9 - Each operator can properly and correctly interpret chemical or process parameters to provide appropriate, timely corrective action
- # 64 - Responsibilities for operations personnel are defined during security and safeguards emergencies
- # 108 - Proper personnel protective equipment is available, use is enforced, and training provided
- # 130 - Instructors have demonstrated knowledge and skills in the subjects being taught, at the required level; instructor completed Walkthrough Training Instructor Course
- # 131 - Instructors have demonstrated knowledge and skills in the subjects being taught, at the required level; instructor completed RF BIT Course
- # 134 - Personnel received nuclear criticality training consistent with their tasks
- # 135 - Facility operator and supervisor training is adequate; job-specific Qual Standards Package established
- # 138 - Training organization and administration is effective and adequate; requirements for temps and contract personnel are established and appropriate
- # 143 - Maintenance personnel training program is adequate
- # 144 - On-the-job training is structured and includes appropriate performance
- # 147 - Training materials are reviewed and approved
- # 151 - Personnel are trained under the ALARA philosophy
- # 260 - All employees have completed the required OSHA training
- # 334 - Facility personnel have been trained in a way that ensures compliance with 6 CCR 1007-3, Part 265

XII. DOE CONCERNS and ISSUES

In addition to Key Project Elements being addressed and evaluated through EG&G's Self-Assessment as described in the preceding pages, the DOE, RFO-ERD Special Assessment Team also identified several concerns and issues during the course of its own Special Assessment. In some instances, these concerns/issues are directly related to checklist items developed through the EG&G Self-Assessment. In other instances, this relationship is not as clear.

The following are those Findings cited by the ERD Special Assessment Team, by classification.

PRE-Hot SO Test

Item 2 -- LACK OF QA DURING TESTING: A review of the test procedure used as the objective evidence for closure of Checklists 35, 40, 288, 289, 292, & 293 indicates a lack of approval for real time procedure changes, incomplete test steps, lack of success criteria, and missing data.

Item 7 -- The criteria of Checklist #192 states, "Does evidence exist that shows the 910 solar pond project is in compliance with plant sampling and analytical program/plans?" The objective evidence to show compliance was several pages of the IM/IRA. The proper closure should be the comparison of the actual product water sampling plan, 22-PWSP-910-012, with the requirements contained in the IM/IRA and with plant sampling and analytical programs/plans.

Item 9 -- CROSS CONTAMINATION OF DOMESTIC COLD WATER WITH DISTILLATE: (Ref. P&ID #39365-007) The distillate is connected to the domestic water line with back flow preventors. This is a potential source of contamination of the domestic water system.

Item 10 -- SIGHT GLASS ON EDTA DAY TANK: EDTA tank has a high/low sensor. During startup, it will be difficult to monitor the liquid level because of large variations in EDTA requirements. A sight glass is needed to permit continuous monitoring of EDTA level.

Item 15 -- EDTA FEED SYSTEM: The system design does not follow the manufacturers recommended installation in that the system did not incorporate a "mixing tee." There is a concern that the system as designed will not provide a homogeneous mixture, which could cause excessive scaling. There is also a concern that if the mixture is not homogeneous, the EDTA curves that are to be generated during the Qual Testing would not be adequate.

Item 17 -- SYSTEM LEAKS: All 3 evaporator systems have experienced numerous leaks at all types of joints and connections. Corrective actions are nearing completion. It is not certain that a leak-free system, required by regulations, will be attained before Hot SO testing.

Item 24 -- TESTING AND CALIBRATION OF I&C SYSTEMS-- The calibration of instrumentation for the evaporator system has not been completed.

Item 26 -- PROCESS QUAL PROCEDURE-- The HAZWRAP assessment team has comments on the PCP, Document No. EO 34575 (see p.p. 12 through 14 of the draft HAZWRAP report).

PRE-Operations

Item 3 -- HEAT STRESS: Industrial Safety has a concern that heat stress may be a problem for the operators who will be spending a considerable amount of time in the basement during periods of operations, as there is only on exhaust fan to provide ventilation.

Item 6 -- POND WATER PROCESSING: Although the processing of pond water by B910 is not expected to be required, the capability to do so must be maintained. There are a number of tasks that would need to be accomplished to do so, among these tasks is the preparation of the nitric acid system, the connection of the pumps to the feed lines, evaluation of the feed prefilters, secondary containment leak detection compensatory measures, etc.

Item 11 -- WATCHDOG TIMER: The Programmable Logic Controller (PLC) provided by Licon has a Watchdog Timer, but its status is not readily available to the operators.

Item 13 -- DOE ORDER 6430.1A COMPLIANCE: The Licon-provided equipment does not appear to be in compliance with 6430.1A in the areas of Fail Safe Alarming, Positive Confirmation of Alarms and Alarms Testing (details are contained in the Draft HAZWRAP report).

Item 19 -- MULTIPLE MEANING FOR INDICATORS: Because of the present power configuration (ref. DOE Item 12) and because there are no provisions for alarm testing or fail safe alarming (ref. DOE Item 13), each display indicator can have four possible modes:

1) normal energized state
2) normal de-energized state
3) burned-out light state
4) no power state

Item 20 -- PLC LADDER LOGIC CONFIGURATION CONTROL: The PLC Ladder Logic has been in the hands of Licon up till now. There is no configuration control of the PLC Logic.

Item 22 -- SIGNET FLOW METER INSTALLATION-- The signet flow meters are mounted vertically in the Licon system. Vertical mounting reduces the accuracy of the measurements. The manufacturer recommends horizontal mounting.

POST-Operations

Item 12 -- POWER TO THE PLC: Power to the Licon-provided PLC is provided by the unit generator. Shutdown or failure of the generator can result in the shutdown of the evaporators to an unknown condition, recovery from which could be extremely time consuming and could possibly lead to contamination of clean systems or external to the evaporators.

Item 14 -- ENGINE COOLING WATER CONTROL: The manual valve used on the current design of the engine jacket cooling water must be constantly adjusted by an operator during startup.

All concerns and issues, whether arising through the EG&G Self-Assessment or as an issue/concern raised by the ERD Special Assessment, have been typed and categorized as described in Section IV D above and placed on the SPP Actions Tracking Matrix [Attachment 2]. Items carrying a "Post-Startup" status will also be placed on the RFP Performance Action Tracking System (PATS) to ensure closure on the schedules indicated. [*NOTE:* Post-startup actions with completion dates in the very near-term will not be entered into the PATS, since their completion would precede their actual entry into the system.

XIII. LIST OF ATTACHMENTS

Attachment 1: B910 Evaporators Startup Self-Assessment Document Matrix
Attachment 2: B910 Evaporators Startup: SPP Actions Tracking Matrix
Attachment 3: Summary of Statutes, Regulations, and Orders Applicable to SPP Water Management

Attachment 1

B910 Evaporators Startup Self-Assessment Document Matrix

B910 Evaporators Startup Self-Assessment Document Matrix

	DOCUMENT TITLE	DOCUMENT NUMBER	EG&G ORG.	PRESENT STATUS	DATE APP'V'D	REV. NO.	DOE ORG.
SECTION I -- INTRODUCTION							
A	Program Description	- - -	ERM/SPRP	complete	n/a	- - -	- - -
B	B910 Evaporators Startup Document Matrix (this document)	- - -	ERM/SPRP	contin. updated	4/28/93	1	- - -
C	Documentation Tree	- - -	ERM/SPRP	complete	2/25/93	- - -	- - -
SECTION II -- ASSESSMENT DOCUMENTATION							
A	Self-Assessment Plan for B910 Evaporators Startup	11310-SAP-B910-001	ERM/SPP	complete	5/14/93	0	- - -
	>>>>Scope of Assessment						- - -
	>>>>Physical Boundaries						- - -
	>>>>Administrative Bourdaries						- - -
	>>>>EG&G Self-Assessment Team						- - -
B	EG&G Self-Assessment Report	(11310-SAP-B910-002)	E&WM/RSD	completed	6/4/93	- - -	- - -
C	DOE Special Assessment Review Team	- - -	- - -	n/a	n/a	- - -	ERD
D	DOE Special Assessment Review Team Comments/Disposition		- - -	due 6/11		- - -	ERD
E	Tracking Matrix - Findings, Open Items, and Commitments	- - -	ERM/SPP	contin. updated			ERD
F	EG&G Evidence of Readiness Report	(11310-SAP-B910-003)	ERM/SPP	due 6/11			- - -
G	DOE Declaration of Operational Readiness	- - -	- - -	due 7/22			ERD
SECTION III -- STANDARDS COMPLIANCE							
A	B910 Readiness to Support Operations Pursuant to Defense Nuclear Safety Board (DNFSB) Recommendation 90-2	(11310-SAP-B910-004)	ERM/SPP	draft complete 5/11	due 6/11	0	ERD
SECTION IV -- PROJECT DOCUMENTS (THIS SECTION INTENTIONALLY LEFT BLANK)							
SECTION V -- PROGRAM MANAGEMENT							
A	Checklists	- - -	ERM/SPP	to DOE 4/28			ERD
B	Action Plan for the B910 Evaporators Startup (incl. schedule)	- - -	ERM/SPP	approved	2/26/93	0	- - -
SECTION VI -- REGULATORY COMPLIANCE							
A	Checklists	- - -	ERM/SPP	to DOE 4/28			Waste Ops
B	Interim Measure/Interim Remedial Action (IM/IRA)	- - -	DOE/EPA/CDH	finalized	4/6/92	- - -	
	>>>>IM/IRA modification letter	93-DOE-00977	SPP>DOE>CD	complete	1/25/93	- - -	
	>>>>IM/IRA modification approval letter	- - -	CDH>DOE	complete	2/17/93	- - -	

Status as of 6/11/93 -- 3:15 PM
Section numbers refer to the Project Self-Assessment Package

	DOCUMENT TITLE	DOCUMENT NUMBER	EG&G ORG.	PRESENT STATUS	DATE APP'V'D	REV. NO.	DOE ORG.
SECTION VII -- FACILITY/EQUIPMENT DESIGN							
A	Checklists	- - -	ERM/SPP	to DOE 4/28			Const/Engr
B	Listing of EOs and PRs	- - -	ESS & SPP	complete	2/19/93		- - -
C	List of drawings	986818 report	E&T/ESS	complete	2/25/93		- - -
D	Operational Requirements Document (ORD) for B910	- - -	E&T/M&PE	complete	8/8/91		- - -
E	Design Criteria / Summary		E&T				- - -
SECTION VIII -- FACILITY/EQUIPMENT TEST AND QUALITY ASSURANCE							
A	Checklists	- - -	ERM/SPP	to DOE 4/28			PA&QA
B	B910 Evaporator Process Control Plan (PCP) [Appendix 7.11 of the Low Level Waste Management Plan]	1-10000-EWQA, Appendix 7.11	Waste Programs	approved	5/28/93	0	- - -
	>>>> § 8, Sampling and Analysis Plan	- - -	Wste Prog	approved	6/1/93	0	- - -
C	Test Plan for the B910 Evaporators and Associated Tanks	- - -	- - -	completed	11/12/92	- - -	- - -
D	PRODUCT QUALIFICATION TEST PLAN (PQTP): 910 Product Qualification Test Plan	22-PQTP-910-011	ERM/SPP> LWTO	complete	due 6/1	0	- - -
E	WORK QUALITY ASSURANCE PLAN: 910 Product Water Sampling Program	22-PWSP-910-012	ERM/SPP> LWTO	complete	due 6/1	0	- - -
F	Component Check-Out and System Operation Test Procedure for Building 910 Portable Waste Treatment Evaporator (COLD SO TEST PROCEDURE)	Project File 986818 EO 35253	E&T/M&PE	approved	2/12/93	1	- - -
G	Process Qualification Procedure for Building 910 Portable Waste Treatment Evaporator (HOT SO TEST PROCEDURE)	Project File 986818 EO 34575	E&T/M&PE	approved; in controlled dist 5/25		0	- - -
H	Interim Measure/Interim Remedial Acion for the Solar Evaporation Ponds, Decison Document - Quality Assurance Addendum (QAA); Appendix E	11000-IM-12214.1	ERM/SPP	approved	5/20/93	0	- - -
SECTION IX -- FACILITY/EQUIPMENT OPERATIONS							
A	Checklists		ERM/SPP	to DOE 4/28			Ops
B	Portable Waste Treatment Evaporator Line-up Check-off List	4-22PEP-910-001	E&WM/LWTP	conc/res 5/24	due 6/2	0	- - -
C	EDTA Addition	4-22PEP-910-002	E&WM/LWTP	approved	5/5/93	0	- - -
D	Nitric Acid Addition	4-22PEP-910-003	E&WM/LWTP	approved	5/5/93	0	- - -
E	Evaporator Feed System	4-22PEP-910-004	E&WM/LWS	approved	4/20/93	0	- - -
F	Unit 1, 2, and 3 Evaporators	4-22PEP-910-005	E&WM/LWS	complete	4/15/93	0	- - -
G	Distillate System	4-22PEP-910-008	E&WM/LWS	B/comment res	due 5/28	0	- - -

Status as of 6/11/93 -- 3:15 PM
Section numbers refer to the Project Self-Assessment Package

	DOCUMENT TITLE	DOCUMENT NUMBER	EG&G ORG.	PRESENT STATUS	DATE APP'V'D	REV. NO.	DOE ORG.
SECTION IX – FACILITY/EQUIPMENT OPERATIONS (continued)							
H	Concentrate System	4-22PEP-910-009	E&WM/LWS	approved	4/6/93	0	- - -
I	B910 Main Control Panel Alarm Response Procedures	4-22ARP-101-MCP	E&WM/LWS	approved	4/13/93	0	- - -
J	B910 Main Annuciator Panel Alarm Response Procedures	4-22ARP-101-ANN	E&WM/LWS	approved	4/13/93	0	- - -
K	B910 Alarm Annuciator Panel Alarm Response Procedures	4-22ARP-101-AA910	E&WM/LWS	approved	4/13/93	0	- - -
L	B910 Evaporators MEMS Alarm Response Procedure	4-22ARP-101-MEMS	E&WM/LWS	approved	4/13/93	0	- - -
M	B910 Evaporators VC Alarm Response Procedure	4-22ARP-101-VC	E&WM/LWS	approved	4/13/93	0	- - -
N	Ponds Leak Detector Alarm Response	4-22ARP-101-CIA-1108	E&WM/LWS	approved	4/21/93	0	- - -
O	Preventative Maintenance Operation (PMO)		LWTO	DELETED			- - -
P	Decontamination	4-30000-FO-0001	Technical Ops Control	PCN on 3/31/93	11/12/92	0	- - -
SECTION X – SAFETY							
A	Checklists		ERM/SPP	to DOE 4/28			Ind/Rad/Nuc
B	B910 Final Safety Analysis Report (FSAR)	- - -	E&T/SAE	to DOE 3/30		1	- - -
C	B910 Health and Safety Plan (HASP)	- - -	E&WM/LWTO	approved	3/19/93	1	- - -
D	B910 Aqueous Waste Treatment System Radiological Controls Implementation Plan	- - -	SS&S/RE	completed	4/19/93	0	- - -
E	Emergency Preparedness Plan	1-31000-BEP-10.910	SS&S/EP	A/parallel	9/7/93	0	- - -
F	Operational Safety Analysis (OSA) - B910 Evaporator Process	910.001	E&WM/LWS	approved	1/6/93	- - -	- - -
G	B910 Fire Hazard Analysis		SPP/E&T	To BCP 5/28	due 3/94	- - -	- - -
SECTION XI – TRAINING							
A	Checklists		ERM/SPP	to DOE 4/28			Trng&Devl
B	QUALIFICATION STANDARD PACKAGE: Building 910 Evaporator Process	Course 006-193-01	E&WM/LWTO	approved	5/14/93	- - -	- - -
C	B910 Chemical Operator (Treatment) 910 Evaporator Process - TASK ANALYSIS REPORT	36.11	PBT	approved	5/22/93	Interim	- - -
SECTION XII – OTHER							

Attachment 2

B910 Evaporators Startup: SPP Actions Tracking Matrix

B910 EVAPORATORS STARTUP: SPP ACTIONS TRACKING MATRIX

TRACKING NO.	CK LST NO.	SRC EG&G	SRC DOE	FINDING / OPEN ITEM DESCRIPTION	TYPE & STAT: o PRE-HOT SO TEST	TYPE & STAT: c	TYPE & STAT: o PRE-OPERATIONS	TYPE & STAT: c	TYPE & STAT: o POST-OPERATIONS	TYPE & STAT: c	CATEG & STAT: o Open Item	CATEG & STAT: c	CATEG & STAT: o Finding	CATEG & STAT: c	CATEG & STAT: o Observation	CATEG & STAT: c	SCHEDULE	REQUIRED CORRECTIVE ACTION or RESPONSE	RESPONSIBILITY: ORG LEAD / Support	RESPONSIBILITY: INDIVID LEAD / Support	RESPONSIBILITY: COMMITMENT DATE / STATUS
1	6	X		Could not verify that all procedures, dwgs, operator aids, etc., are written, approved; control mechanisms are in place.	X						X							Verify that all procedures, dwgs, operator aids, etc., are written, approved; control mechanisms are in place.	/ SPP	/ Valencia	CLOSED 6/11
2	9	X		Could not verify each operator is trained on chemistry/process parameters.	X						X						15000150	Complete Qual Training-- Ops training on chemistry/process parameters.	LWTO / SPP	LARSEN / Valencia	min. of 2 ops per shift will be trained by 6/15
3	33	X		Waste characterization requirements not verified as adequate.		X						X						Complete PCP.			CLOSED 5/28 PCP approved
4	41	X		Flammable and combustible liquids are improperly stored.			X						X					Relocate flammable storage cabinet, east egress main floor; and east basement stairs.	LWTO / SPP	LARSEN x2966 d1964 / Bretz	6/10>Larsen to issue ltr on why not a Finding; commit to fix by 8/3
5	43	X		Sprinkler system is not included in RFP Fire Department inspection, testing, maintenance program.	X								X					Label sprinkler system per SX-164 & submit config. control dwg. with component labels to Fire Dept. FD will then inspect.	FPM / SPP	ANHOLD x5160 d1247 & ATCHISON /	6/10>perhaps use controlled const dwgs-talk to M. Austin
6	44	X		Acceptance and testing of Proprietary Protective Signaling System is not proceduralized.	X								X					After #43, and after successful inspection, system can be entered into schedule for periodic testing.	FPM / SPP	ANHOLD x5160 d1247 & ATCHISON /	
7	48	X		Proper amount and placement of fire extinguishers not verified.			X						X					Install fire extinguisher at bottom of east stairs, in basement.	LWTO / SPP	LARSEN x2966 d1964 / Bretz	6/10>Larsen will discuss w/RFFD; commit to 6/11
8	49	X		Proprietary Protective Signaling System does not meet installation, mtce, & testing requirements. Work package not complete.	X								X					Verify #43.	FPM / SPP	ANHOLD x5160 d1247 & ATCHISON /	6/10>verbal that work is complete; need proof or redo test

Status as of June 11, 1993
All Post-ops actions will be transferred to the PATS as soon as confirmed.

B910 EVAPORATORS STARTUP: SPP ACTIONS TRACKING MATRIX

TRACKING NO.	CK LST NO.	SRC EG&G	SRC DOE	FINDING / OPEN ITEM DESCRIPTION	TYPE & STAT: PRE-HOT SO TEST o	PRE-HOT SO TEST c	PRE-OPERATIONS o	PRE-OPERATIONS c	POST-OPERATIONS o	POST-OPERATIONS c	CATEG & STAT: Open Item o	Open Item c	Finding o	Finding c	Observation o	Observation c	SCHEDULE	REQUIRED CORRECTIVE ACTION or RESPONSE	RESPONSIBILITY: ORG LEAD / Support	RESPONSIBILITY: INDIVID LEAD / Support	RESPONSIBILITY: COMMITMENT DATE / STATUS
9	52	X		Could not verify proper operation of fire alarms. Work package incomplete.	X								X					Verify #43.	FPM / SPP	ANHOLD x5160 d1247 & ATCHISON /	6/10>verbal that work is complete; need proof or redo test
10	58	X		Exits and egress routes not in accordance with NFPA.	X								X					Mark floor elevation change, bottom of east stairs. Install "Exit" sign, middle isle, indicating direction to NW corner stairs from basement.	LWTO / SPP	LARSEN x2966 d1964 / Bretz	6/10>floor commit 6/16 6/10>Sign req's WCF; commit 6/11
11	58		# 5	TRIPPING HAZARD-- There is a tripping hazard in the basement near the bottom of the east stairs, a platform with approx six inch rise.											X			EG&G should (eliminated) the tripping hazard.	LWTO / SPP	LARSEN x2966 d1964 / Bretz	6/10>floor commit 6/16
12	64	X		Could not verify that emergency responsibilities for personnel are properly defined. EPP not completed.		X						X						Verify that EPP is adequate in aspects stated. Complete interim Ops Orders while completing EPP formal approval.	/ SPP	/ Valencia	CLOSED 6/10 Ops Orders 00/910-09 & -10 approved
13	68	X		Could not verify comprehensive SO testing, planning, & control	X						X						12630080	Complete Cold Ops testing.	FPM / SPP	ERICKSON / Ledford & McKaig	
14	72	X		Could not verify marked-up dwgs reflecting as-built configuration are available in field						X		X						Complete redline/as-built drawings.	M&PE / SPP	AUSTIN / Valencia	CLOSED 6/10 Drawings verified as in place
	76			Design control verification and FCO review-- Verification of design control compliance (SAME AS ISSUES 1 AND 2 FROM ITS DIVERSION ASSESSMENT).														VERIFY THAT ACTION PLANS DEVELOPED FOR ITS DIVERSION FINDINGS WILL ALSO ADEQUATELY ADDRESS THESE B910 ISSUES.	M&PE	SNYDER	
15 A	76	X		Engineering Change Request (ECR) forms are not in use.	X								X					Provide plan and means of verification of systematic use of ECRs.	M&PE	SNYDER	
15 B	76	X		It is impossible to determine what field changes accomplish without direct discussion with the originator.	X								X					Improve/clarify documentation of field changes.	M&PE	SNYDER	

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B910 EVAPORATORS STARTUP: SPP ACTIONS TRACKING MATRIX

TRACKING NO.	CK LST NO.	SRC EG&G	SRC DOE	FINDING / OPEN ITEM DESCRIPTION	TYPE & STAT PRE-HOT SO TEST o	PRE-HOT SO TEST c	TYPE & STAT PRE-OPERATIONS o	PRE-OPERATIONS c	TYPE & STAT POST-OPERATIONS o	POST-OPERATIONS c	CATEG & STAT Open Item o	Open Item c	CATEG & STAT Finding o	Finding c	CATEG & STAT Observation o	Observation c	SCHEDULE	REQUIRED CORRECTIVE ACTION or RESPONSE	RESPONSIBILITY ORG LEAD / Support	RESPONSIBILITY INDIVID LEAD / Support	RESPONSIBILITY COMMITMENT DATE / STATUS
15C	76	X		Affected engineering disciplines are not involved in the review process.	X								X					Provide plan and means of verification of proper discipline reviews.	M&PE	SNYDER	
15D	76	X		Non-cognizant managers are approving engineering documents.	X								X					Provide plan and means of verification of approvals by cognizant managers only.	M&PE	SNYDER	
15E	76	X		Vendor-provided software with known faults is being used for heat trace calculations.	X								X					Institute proper control of heat trace calcs. Provide plan and means of avoiding similar problems in the future (i.e., faulty software use).	M&PE	SNYDER	
15F	76	X		Major modifications are being performed without documented technical justifications. Example: FD #321 does not document/justify calcs used, not does it document origins of design inputs.	X								X					Provide plan and means of documenting justifications. Revise COEM FAC-23 so that it requires the same level of justification as required by the QA Manual.	M&PE	SNYDER	
15G	76	X		Sketches are being used when controlled drawings are required. Example: FD#322 accomplished rewiring and labeling of leak detection system by use of sketches. This violates Engr. Dir. 91-001, ¶4.1.2.	X								X					Provide plan and means to ensure against improper use of sketches.	M&PE	SNYDER	
15H	76	X		It cannot be determined if EDC documentation is complete. There are duplicate FCO numbers, while some numbers are not on file at all. Many field condition changes and design clarifications are not numbered at all.	X								X					Provide plan and means to ensure proper control of EDC documentation.	M&PE	SNYDER	
	78			Design control verification and FCO review-- Verification of design control compliance (SAME AS ISSUES 1 AND 2 FROM ITS DIVERSION ASSESSMENT).														VERIFY THAT ACTION PLANS DEVELOPED FOR ITS DIVERSION FINDINGS WILL ALSO ADEQUATELY ADDRESS THESE B910 ISSUES.	M&PE	SNYDER	

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B910 EVAPORATORS STARTUP: SPP ACTIONS TRACKING MATRIX

TRACKING NO.	CK LST NO.	SRC EG&G	SRC DOE	FINDING / OPEN ITEM DESCRIPTION	TYPE & STAT: o PRE-HOT SO TEST	TYPE & STAT: c PRE-HOT SO TEST	TYPE & STAT: o PRE-OPERATIONS	TYPE & STAT: c PRE-OPERATIONS	TYPE & STAT: o POST-OPERATIONS	TYPE & STAT: c POST-OPERATIONS	CATEG & STAT: o Open Item	CATEG & STAT: c Open Item	CATEG & STAT: o Finding	CATEG & STAT: c Finding	CATEG & STAT: o Observation	CATEG & STAT: c Observation	SCHEDULE	REQUIRED CORRECTIVE ACTION or RESPONSE	RESPONSIBILITY: ORG LEAD / Support	RESPONSIBILITY: INDIVID LEAD / Support	RESPONSIBILITY: COMMITMENT DATE / STATUS
16 A	78	X		Field Directives implemented by COEM FAC-23 do not require review and approval by Environmental and Waste Management, Fire Protection Engineering, or Nuclear Safety.	X								X						M&PE	SNYDER	
16 B	78	X		The Field Directive process is not properly implemented. The process is being abused to avoid proper design change controls.	X								X						M&PE	SNYDER	
16 C	78	X		Engineers are not routinely implementing the criteria of COEM FAC-23 regarding their qualifications to review and approve FDs.	X								X						M&PE	SNYDER	
16 D	78	X		Quality records are not being maintained in accordance with RFP QA Manual, QR-17, QA Records.	X								X						M&PE	SNYDER	
17	79	X		Cold not verify that effective design control system had been implemented for project construction-- Verification of design control compliance (SAME AS ITS DIVERSION ISSUES 1 AND 2).	X								X					VERIFY THAT ACTION PLANS DEVELOPED FOR ITS DIVERSION FINDINGS WILL ALSO ADEQUATELY ADDRESS THESE B910 ISSUES.	M&PE	SNYDER	
18	89	X		Could not verify properly installed safety shower, North side. Could not verify water temp. Could not verify Room 103 eyewash if pH requires.		X						X						Install: Safety shower, North side; Room 103 eyewash if pH requires; Industrial Hygiene verify water temp.	/ SPP	/ Valencia	CLOSED 6/9 Verified by V. Valencia
19	90	X		Could not verify that all moving equipment parts are identified and guarded.	X						X						12800010 ?	Industrial Safety perform walk-through after all equipment installed.	/ SPP	/ Ledford	
20	91	X		Chain hoist inspection overdue, out of validation.		X						X						Verify status of hoist; LO/TO or certify/validate.	LWTO / SPP	LARSEN / Valencia	CLOSED 6/9 LO/TO verified by V. Valencia
21	92	X		Could not verify existence of pressure safety program.				X			X							Verify satisfactory safety pressure program is in place.	/ SPP	/ Ferrier	CLOSED 6/14

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B910 EVAPORATORS STARTUP: SPP ACTIONS TRACKING MATRIX

TRACKING NO.	CK LST NO.	SRC EG&G	SRC DOE	FINDING / OPEN ITEM DESCRIPTION	TYPE & STAT: o PRE-HOT SO TEST	c	o PRE-OPERATIONS	c	o POST-OPERATIONS	c	CATEG & STAT: o Open Item	c	o Finding	c	o Observation	c	SCHEDULE	REQUIRED CORRECTIVE ACTION or RESPONSE	RESPONSIBILITY: ORG LEAD / Support	INDIVID LEAD / Support	COMMITMENT DATE / STATUS
22	93	X		Could not verify existence of emergency & hazardous waste ops program per 29 CFR 1910.120. EPP not approved.		X						X						Verify that EPP is adequate in aspects stated. Complete Interim Ops Orders while completing EPP formal approval.	/ SPP	/ Valencia	CLOSED 6/10 Ops Orders 00/910-09 & -10 approved
23	95	X		Could not verify that 910 org has implemented required safety programs.	X						X						15000150 ?	Complete building-specific training to Rev. 1 of the B910 HASP.	LWTO / SPP	AMEY / Valencia	will be completed by COB 6/15
24	102	X		Could not verify that monitoring data requirements are being met.			X				X						12800010 ?	Heat stress to be evaluated by Industrial Hygiene following startup. Requires bldg. mgt. request.	/ SPP	/ Ledford	6/11>Mike Bunney x2751 d1048
24 A	n/a		# 3	HEAT STRESS-- Industrial Safety has a concern that heat stress may be a problem for the operators who will be spending a considerable amount of time in the basement during periods of operations, as there is only one exhaust fan to provide ventilation.			X						X					EG&G should provide evidence that heat stress will not be a problem for operators in the basement of B910.	/ SPP	/ Ledford	
25	111	X		All construction (ladders, stairs, guardrails, fall protection) has not been completed.	X						X						OSHA; 12800010 ?	Ops mgt. should request walkdown by IS following construction completion.	/ SPP	/ Ledford	6/11>Mike Bunney x2751 d1048
26	112	X		All construction (equipment and component labeling) has not been completed.	X						X						OSHA; 12800010 ?	Ops mgt. should request walkdown by IS following construction completion.	/ SPP	/ Ledford	6/11>Mike Bunney x2751 d1048
27	114	X		All construction (electrical safety) per recommendation of Elect. Mtce has not been completed.	X						X						OSHA Stds	Ops mgt. should request walkdown by IS following construction completion.	/ SPP	/ Ledford	6/11>Mike Bunney x2751 d1048
28	120	X		Evidence of NCR system compliance, that existing NCRS, etc., are in system and being worked.			X				X							Verify that any existing NCRs are in proper closure processes/modes.	QA / SPP	WARFIELD x4187 d4217 / Bretz	being verified

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B910 EVAPORATORS STARTUP: SPP ACTIONS TRACKING MATRIX

TRACKING NO.	CK LST NO.	SRC EG&G	SRC DOE	FINDING / OPEN ITEM DESCRIPTION	TYPE & STAT: PRE-HOT SO TEST o	PRE-HOT SO TEST c	PRE-OPERATIONS o	PRE-OPERATIONS c	POST-OPERATIONS o	POST-OPERATIONS c	CATEG & STAT: Open Item o	Open Item c	Finding o	Finding c	Observation o	Observation c	SCHEDULE	REQUIRED CORRECTIVE ACTION or RESPONSE	RESPONSIBILITY: ORG LEAD / Support	RESPONSIBILITY: INDIVID LEAD / Support	RESPONSIBILITY: COMMITMENT DATE / STATUS
29	126	X		Could not verify existence of IWCP control.			X				X						13220200 13330095 13340120 13350100	Provide evidence of IWCP control, i.e., the completion of several IWCP packages.	FPM / SPP	ANHOLD x5160 d1247 & ATCHISON /	6/10> 13220200-compl 13330095-compl 13340120-6/14 13350100-7/6
30	135	X		Could not verify Ops. and supers trained to Qual .Stds. Package	X						X						15000150	Complete Qual. Training.	LWTO / SPP	LARSEN / Valencia	6/15/93
31	144	X		Could not verify On-the-job training programs are adequate.	X						X						15000150	Complete Qual. Training.	LWTO / SPP	LARSEN / Valencia	6/15/93
32	147	X		Training materials not reviewed and approved.		X						X						Approval of JTA, QSP, OJT, classroom matls, etc.	/ SPP	/ Valencia	CLOSED 5/22
33	151		# 1	The names of two employees . . . are not included in the objective evidence reports, although they have in fact received the appropriate training as evidenced by their inclusion in other reports. (See also Checklist 334.)											X			EG&G should pass this information on to the appropriate internal organization.			
34	159	X		Could not verify that an adequate record keeping system is in place in B910 for waste transfer operations.			X				X							Verify adequate record keeping system in place in B910 for waste transfer operations.	LWTO / SPP	LARSEN / Valencia	CLOSED 6/11
35	176	X		Could not verify plans for effective emergency response--EPP not approved.		X						X						Verify that EPP is adequate in aspects stated. Complete Interim Ops Orders while completing EPP formal approval.	/ SPP	/ Valencia	CLOSED 6/10 Ops Orders 00/910-09 & -10 approved
36	192		# 7	The criteria of #192 states, "Does evidence exist that shows the 910 solar pond project is in compliance with plant sampling and analytical program/plans." The objective evidence to show compliance was several pages of the should be the comparison of the actual product water sampling plan, 22-PWSP-910-012, with the requirements contained in the IM-/IRA and with plant sampling and analytical programs/plans.		X								X				EG&G should revalidate the checklist by a comparison of the PWSP to the IM/IRA and plant requirements.	SPP	LONDON	CLOSED 6/10

Status as of June 11, 1993
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B910 EVAPORATORS STARTUP: SPP ACTIONS TRACKING MATRIX

TRACKING NO.	CK LST NO.	SRC EG&G	SRC DOE	FINDING / OPEN ITEM DESCRIPTION	TYPE & STAT o PRE-HOT SO TEST	TYPE & STAT c	TYPE & STAT o PRE-OPERATIONS	TYPE & STAT c	TYPE & STAT o POST-OPERATIONS	TYPE & STAT c	CATEG & STAT o Open Item	CATEG & STAT c	CATEG & STAT o Finding	CATEG & STAT c	CATEG & STAT o Observation	CATEG & STAT c	SCHEDULE	REQUIRED CORRECTIVE ACTION or RESPONSE	RESPONSIBILITY ORG LEAD / Support	RESPONSIBILITY INDIVID LEAD / Support	RESPONSIBILITY COMMITMENT DATE / STATUS
37	229	X		Could not verify that all procedures are tech. and admin. accurate			X				X						14170080	Very all procedures are approved. (Brine transfer is only incomplete procedure.)	SPP	VALENCIA	CLOSED 6/11
38	237	X		Could not verify that annunciator response documentation is in designated physical locations.	X						X						14310180 14320180 14330180 14340180 14360000	Verify that annunciator response documentation is in designated physical locations.	/ SPP	/ Valencia	CLOSED 6/11
39	238	X		There are no proceduralized mechanisms in place, as required by COOP, to perform lamp and annunciator checks. LICON panels do not have such a mechanism.			X						X					Develop and approved procedure to ensure satisfactory operational testing for panel lights and annunciators.	LWTO / SPP	LARSEN / Valencia	HAZWRAP issue
40	258	X		Hearing conservation program-- Noise monitoring required following startup (cannot be verified prior to ops).	X						X							Ops mgt. should request monitoring by IH following startup.	/ SPP	/ Ledford	
41	264	X		Could not verify valid instrument calibrations.	X						X						12700140	Calibrate and validate M&TE.	LWTO / SPP	LARSEN / Valencia	6/11 Emie Stunson x5236
41 A	264		# 24	TESTING AND CALIBRATION OF I&C SYSTEMS-- The calibration of instrumentation for the evaporator system has not been completed.	X								X					EG&G must complete the claibration of the evaporator systems instrumentation prior to Hot SO Test start.	LWTO / SPP	LARSEN / Valencia	6/11 Emie Stunson x5236
42	278	X		Could not verify waste acceptance criteria		X						X						Complete PCP.			CLOSED 5/28 PCP approved
43	281	X		Could not verify environmental monitoring program		X						X						Complete PCP.			CLOSED 5/28 PCP approved
44	283	X		Could not verify cradle to grave record system		X						X						Complete PCP.			CLOSED 5/28 PCP approved
45	290	X		Could not verify proper operation of Condensate Surge Tank (D10) h/l alarms.			X				X						12310089	Conduct SO test of 215D product water lines.	ER / SPP	McKAIG x6531 d4038/ Bretz	7/13/93

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B910 EVAPORATORS STARTUP: SPP ACTIONS TRACKING MATRIX

TRACKING NO.	CK LST NO.	SRC EG&G	SRC DOE	FINDING / OPEN ITEM DESCRIPTION	TYPE & STAT: PRE-HOT SO TEST o	PRE-HOT SO TEST c	PRE-OPERATIONS o	PRE-OPERATIONS c	POST-OPERATIONS o	POST-OPERATIONS c	CATEG & STAT: Open Item o	Open Item c	Finding o	Finding c	Observation o	Observation c	SCHEDULE	REQUIRED CORRECTIVE ACTION or RESPONSE	RESPONSIBILITY: ORG LEAD / Support	RESPONSIBILITY: INDIVID LEAD / Support	COMMITMENT DATE / STATUS
46	291	X		Could not verify proper operation of Distillate Holding Tanks (215-d) h/l alarms.			X				X						12310089	Conduct SO test of 215D product water lines.	ER / SPP	McKAIG x6531 d4038/ Bretz	7/13/93
47	296	X		Could not verify proper operation of Tanker level sensor and alarms.			X				X						12520010	Conduct tanker level sensor and alarm testing; Perform more than component test.	ER / SPP	McKAIG x6531 d4038/ Bretz	
48	297	X		Could not verify 207A & B Leak Detection alarms functional.						X		X						Complete SO test for restoration of pond feed lines.			CLOSED - OBE This item should have been de-scoped; project is no longer to treat pond water.
48 A	n/a		# 6	POND WATER PROCESSING-- Although the processing of pond water by B910 is not expected to be required, the capability to do so must be maintained. There are a number of tasks that would need to be accomplished to do so, among these tasks preparation of the nitric acid system, the connection of the pumps to the feedlines, evaluation of the feed prefilters, secondary containment leak detection compensatory measures, etc.					X				X				EG&G is to prepare a plan, which details the tasks to be accomplished and an approximate timeline to allow for the capability of processing pond water in B910.			
49	299	X		Could not verify proper operation of Natural Gas Engine System alarms.	X						X							Conduct power overload/motor load test.	/ SPP	/ Bretz	
50	302	X		Could not verify generator units emissions controls.			X				X						16450020	Complete APEN Test Report.	CLEAN AIR /		
51	333	X		Could not verify proper signage installation		X						X						Post sign on south side of B910: "Danger--Unauthorized Personnel Keep Out"	LWTO / SPP	LARSEN / Valencia	CLOSED 6/8 Verified by V. Valencia

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B910 EVAPORATORS STARTUP: SPP ACTIONS TRACKING MATRIX

TRACKING NO.	CK LST NO.	SRC EG&G	SRC DOE	FINDING / OPEN ITEM DESCRIPTION	TYPE & STAT: PRE-HOT SO TEST o	PRE-HOT SO TEST c	PRE-OPERATIONS o	PRE-OPERATIONS c	POST-OPERATIONS o	POST-OPERATIONS c	CATEG & STAT: Open Item o	Open Item c	Finding o	Finding c	Observation o	Observation c	SCHEDULE	REQUIRED CORRECTIVE ACTION or RESPONSE	RESPONSIBILITY: ORG LEAD / Support	RESPONSIBILITY: INDIVID LEAD / Support	RESPONSIBILITY: COMMITMENT DATE / STATUS
52	342	X		Could not verify formal inspection system for building.				X				X						Establish written inspection schedule.	LWTO / SPP	LARSEN / Valencia	CLOSED 6/9 Verified by V. Valencia
53	361	X		Support Services indicates lack of PMOs or WCFs for safety shutoff devices.			X				X						14400010 14400015 14000016	Develop adequate inspection/maintenance of safety shutoffs, such as FV1153, FV 1163, and FV.1173	ER / SPP	McKAIG x6531 d4038/ Bretz	
54	>>		# 2	LACK OF QA DURING TESTING-- A review of the test procedure used as the objective evidence for closure of Checklists 35, 40, 288, 289, 292, & 293 indicates a lack of approval for real time procedure changes, incomplete test steps, lack of success criteria, and missing data.	X								X					EG&G will show evidence as to why such controls were not required for the performance of these tests.			
55	n/a		# 4	DRINKING WATER-- Drinking water in plastic bottles (are) stored beside the nitric acid tank.											X			EG&G should store the water in another location.			
56	n/a		# 8	SELF-ASSESSMENT PROCESS-- In general the self-assessment process employed by the SPRP focuses on process validation rather than process implementation. The vast majority of the checklists deal with (wheather) or not a piece of paper has had the proscribed review and signatures rather than validating (wheather) or not the piece of paper has been implemented properly.											X			EG&G should revamp the self-assessment process to focus more on process implementation rather than validating that the processes are in place.			

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B910 EVAPORATORS STARTUP: SPP ACTIONS TRACKING MATRIX

TRACKING NO.	CK LST NO.	SRC EG&G	SRC DOE	FINDING / OPEN ITEM DESCRIPTION	TYPE & STAT: PRE-HOT SO TEST o	PRE-HOT SO TEST c	PRE-OPERATIONS o	PRE-OPERATIONS c	POST-OPERATIONS o	POST-OPERATIONS c	CATEG & STAT: Open Item o	Open Item c	Finding o	Finding c	Observation o	Observation c	SCHEDULE	REQUIRED CORRECTIVE ACTION or RESPONSE	RESPONSIBILITY: ORG LEAD / Support	RESPONSIBILITY: INDIVID LEAD / Support	RESPONSIBILITY: COMMITMENT DATE / STATUS
57	n/a		# 9	CROSS CONTAMINATION OF DOMESTIC COLD WATER WITH DISTILLATE-- (Ref. P&ID #39365-007) The distillate is connected to the domestic water line with back flow preventors. This is a potential source of contamination of the domestic water system.	X								X					A fix is already in work by EG&G. EG&G needs to complete the work specified under EO 35599 prior to Hot SO startup.			
58	n/a		# 10	SIGHT GLASS ON EDTA DAY TANK-- EDTA tank has a high/low sensor. During startup, it will be difficult to monitor the liquid level because of large variations in EDTA requirements. A sight glass is needed to permit continuous monitoring of EDTA level.	X								X					EG&G is currently installing a sight glass on the EDTA tank under FD340. This needs to be completed prior to the Hot SO test startup.			
59	n/a		# 11	WATCHDOG TIMER-- The Programmable Logic Controller (PLC) provided by Licon has a Watchdog Timer, but its status is not readily available to the operators.			X						X					EG&G shall provide a means to annunciate the status of the watchdog controller to the operator prior to operational status.	M&TE /	AUSTIN x5119	due 6/16
60	n/a		# 12	POWER TO THE PLC-- Power to the Licon-provided PLC is provided by the unit generator. Shutdown or failure of the generator can result in the shutdown of the evaporators to an unknown condition, recovery from which could be extremely time consuming and could possibly lead to contamination of clean systems or external to the evaporators.					X				X					It is recommended that EG&G place that PLC on house power and that all other instruments and control circuits be placed on house power.			

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B910 EVAPORATORS STARTUP: SPP ACTIONS TRACKING MATRIX

TRACKING NO.	CK LST NO.	SRC EG&G	SRC DOE	FINDING / OPEN ITEM DESCRIPTION	TYPE & STAT: PRE-HOT SO TEST o	PRE-HOT SO TEST c	PRE-OPERATIONS o	PRE-OPERATIONS c	POST-OPERATIONS o	POST-OPERATIONS c	CATEG & STAT: Open Item o	Open Item c	Finding o	Finding c	Observation o	Observation c	SCHEDULE	REQUIRED CORRECTIVE ACTION or RESPONSE	RESPONSIBILITY: ORG LEAD / Support	RESPONSIBILITY: INDIVID LEAD / Support	RESPONSIBILITY: COMMITMENT DATE / STATUS
61	n/a		# 13	DOE ORDER 6430.1A COMPLIANCE-- The Licon-provided equipment does not appear to be in compliance with 6430.1A in the areas of Fail Safe Alarming, Positive Confirmation of Alarms and Alarms Testing (details are contained in the Draft HAZWRAP report).			X						X					EG&G is to: 1) Evaluate the applicability of 6430.1A to the off-the-shelf GFP Licon evaporators; 2) Evaluate the HAZWRAP concerns on their own merit and provide recommendations for their disposition .			
62	n/a		# 14	ENGINE COOLING WATER CONTROL-- The manual valve used on the current design of the engine jacket cooling water must be constantly adjusted by an operator during startup.					X				X					EG&G is to consider retrofitting this system with a more automatic system.			
63	n/a		# 15	EDTA FEED SYSTEM-- The system design does not follow the manufacturers recommended installation in that the system did not incorporate a "mixing tee." There is a concern that the system as designed will not provide a homogeneous cause excessive scaling. There is also a concern that if the mixture is not homogeneous, the EDTA curves that are to be generated during the Qual Testing would not be adequate.	X								X					EG&G is to evaluate the current design and provide evidence that there is sufficient mixing downstream of the EDTA injection point to mitigate the stated concerns.	M&TE /	AUSTIN x5119	due 6/16
64	n/a		# 16	NITRIC ACID FEED SYSTEM-- As designed, the system does not have a double block and bleed system to prevent an accidental discharge during system repairs. Also, the monitoring of acid level in the tank would be enhanced by installation of a sight glass.											X			Since the present operational plans for B910 do not call for use of the Nitric Acid System, EG&G should factor these observations into any future use of the system. These items should be factored into the planning and timeline required in Item #?? above.			

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B910 EVAPORATORS STARTUP: SPP ACTIONS TRACKING MATRIX

TRACKING NO.	CK LST NO.	SRC EG&G	SRC DOE	FINDING / OPEN ITEM DESCRIPTION	TYPE & STAT: o PRE-HOT SO TEST	TYPE & STAT: c	TYPE & STAT: o PRE-OPERATIONS	TYPE & STAT: c	TYPE & STAT: o POST-OPERATIONS	TYPE & STAT: c	CATEG & STAT: o Open Item	CATEG & STAT: c	CATEG & STAT: o Finding	CATEG & STAT: c	CATEG & STAT: o Observation	CATEG & STAT: c	SCHEDULE	REQUIRED CORRECTIVE ACTION or RESPONSE	RESPONSIBILITY: ORG LEAD / Support	RESPONSIBILITY: INDIVID LEAD / Support	RESPONSIBILITY: COMMITMENT DATE / STATUS
65	n/a		# 17	SYSTEM LEAKS-- All 3 evaporator systems have experienced numerous leaks at all types of joints and connections. Corrective actions are nearing completion. It is not certain that a leak-free system, required by regs, will be attained before Hot SO	X								X					EG&G will provide a leak-free system prior to Hot SO, or provide evidence that the leaking has been minimized by providing the details of the efforts conducted to minimize the leaks; a status of the leaks within each system, including number of leaks; approximate volumes of fluid leaking; and the type (i.e., feed, distillate, or brine) of fluid leaking. EG&G will also provide a plan as to how and when it will achieve a leak-free system.			
66	n/a		# 18	PREVENTATIVE MAINTENANCE-- The performance of the MEMS stages over time requires some evaluation. The condensers could become a problem with scaling or fouling because of inadequate feed treatment. There is no provision for cleaning the condenser tubes without removing the condenser from the system.											X			EG&G should consider the use of the nitric acid system for treatment of the ITS feed to help mitigate maintenance because of scaling.			
67	n/a		# 19	MULTIPLE MEANING FOR INDICATORS-- Because of the present power configuration (ref. DOE Item 12) and because there are no provisions for alarm testing or fail safe alarming (ref. DOE Item 13), each display indicator can have four possible modes: 1) normal energized state 2) normal de-energized state 3) burned-out light state 4) no power state			X						X					EG&G should account for these multiple meanings in the operations procedures and in operator training.			

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B910 EVAPORATORS STARTUP: SPP ACTIONS TRACKING MATRIX

TRACKING NO.	CK LST NO.	SRC EG&G	SRC DOE	FINDING / OPEN ITEM DESCRIPTION	TYPE & STAT: PRE-HOT SO TEST o	PRE-HOT SO TEST c	PRE-OPERATIONS o	PRE-OPERATIONS c	POST-OPERATIONS o	POST-OPERATIONS c	CATEG & STAT: Open Item o	Open Item c	Finding o	Finding c	Observation o	Observation c	SCHEDULE	REQUIRED CORRECTIVE ACTION or RESPONSE	RESPONSIBILITY: ORG LEAD / Support	RESPONSIBILITY: INDIVID LEAD / Support	RESPONSIBILITY: COMMITMENT DATE / STATUS
68	n/a		# 20	PLC LADDER LOGIC CONFIGURATION CONTROL-- The PLC Ladder Logic has been in the hands of Licon up till now. There is no configuration control of the PLC Logic.			X						X					The PLC logic should be brought under EG&G configuration control.			
69	n/a		# 21	PRESSURE GAUGE INSTALLATION DETAIL-- The pressure gauges for liquid service are installed above the level of the liquid lines on the vapor compressor. If the uints are down for a period of time, air could enter the system, requiring purging. Purging the lines after satrtup could expose the operators and the environment to contaminants which would require special precautions and increase maintenance time.											X				EG&G may want to install purge lines for these gauges such that they do not have to be purged into the open.			
70	n/a		# 22	SIGNET FLOW METER INSTALLATION-- The signet flow meters are mounted vertically in the Licon system. Vertical mounting reduces the accuracy of the measurements. The manufacturer recommends horizontal mounting.			X						X					This item has been discussed with EG&G operations and they have concluded that the accuracy of the measurements emanating from these flow meters does not impact efficient operation. EG&G should document the reasons why there is no impact.			
71	n/a		# 23	REDUNDANT POWER AND AIR SYSTEMS-- There is no backup to generator for electrical power, house electrical power, or instrumnet air to the evaporator system.											X			With the long startup times involved on restarting the units, it may be economically advantageous to have redundant systems in place for electricity and instrument air.			
72	n/a		# 25	SAFETY HAZARD-- It was noticed that a pipe rack I-beam between Generator 3 and B910 is mounted so that taal persons may hit their heads.											X			EG&G should evaluate the situation and determine if it constitutes a safety hazard and, if so, take appropriate action.			

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B910 EVAPORATORS STARTUP: SPP ACTIONS TRACKING MATRIX

TRACKING NO.	CK LST NO.	SRC: EG&G	SRC: DOE	FINDING / OPEN ITEM DESCRIPTION	TYPE & STAT: PRE-HOT SO TEST o	c	PRE-OPERATIONS o	c	POST-OPERATIONS o	c	CATEG & STAT: Open Item o	c	Finding o	c	Observation o	c	SCHEDULE	REQUIRED CORRECTIVE ACTION or RESPONSE	RESPONSIBILITY: ORG LEAD / Support	INDIVID LEAD / Support	COMMITMENT DATE / STATUS
73			# 26	PROCESS QUAL PROCEDURE-- The HAZWRAP assessment team has comments on the PCP, Document No. EO 34575 (see pp. 12-14 of the draft HAZWRAP report).	X								X					EG&G shall review and incorporate or otherwise disposition the attached comments in conjunction with the RFO SRPR program office.			RECLASSIFY to Post-Ops
74	n/a		# 27	FACTORS THAT WILL REDUCE THROUGHPUT-- The HAZWRAP assessment team has provided comments that could enhance the performance of the evaporatrors. The comments are contained in pp. 14-15 of the draft HAZWRAP report.											X			EG&G should review and evaluate the attached commetns and incorporate those that are practical within the constariants of present schedules and budgets.			

87 DOE> 27

TOTAL PRE-HOT SO TEST	51	TOTAL OPEN ITEMS	39
OPEN	39	OPEN	25
CLOSED	12	CLOSED	14
TOTAL PRE-OPERATIONS	21	FINDINGS	38
OPEN	19	OPEN	37
CLOSED	2	CLOSED	1
TOTAL POST-OPERATIONS	5		
OPEN	3	TOTAL OPEN	61
CLOSED	2	TOTALCLOSED	16

TOTAL ACTIONS (not including Observations) 77

10 OBSERVATIONS

Status as of June 11, 1993
All Post-ops actions will be transferred to the PATS as soon as confirmed.

Attachment 3

Summary of Statutes, Regulations, and Orders Applicable to SPP Water Management

Attachment 3
to
Evidence of Readiness Report
Building 910 Evaporators

Summary of Statutes, Regulations, and Orders Applicable to SPP Water Management

Code of Federal Regulations

10 CFR 1021	National Environmental Policy Act
29 CFR 1904	Recording and reporting Occupational Injuries and Illness
29 CFR 1910	Occupational Safety and Health Standards
40 CFR 50-81	Air Emissions
40 CFR 122	National Pollution Discharge Elimination System (NPDES)
40 CFR 270	EPA Administered Permit Programs: The Hazardous Waste Permit Program
40 CFR 300	Oil and Hazardous Pollution Contingency Plan - NCP
40 CFR 302	Designation, Reporting Quantities, and Notification
40 CFR 355	Emergency Planning and Notification
40 CFR 370	Hazardous Chemical Reporting: Community Right-to-Know
40 CFR 372	Toxic Chemical Release Reporting: Community Right-to-Know
40 CFR 1500	NEPA Purpose, Policy, and Mandate
40 CFR 1501	NEPA and Agency Planning
40 CFR 1505	NEPA and Agency Decision Making
40 CFR 1506	Other Requirements of NEPA
40 CFR 1507	Agency Compliance
49 CFR 171	Regulations for Transportation of Hazardous Materials
49 CFR 172	Hazardous Materials Tables and Hazardous Materials Communications Regulations
49 CFR 173	Shippers - General Requirements for Shipments and Packaging
49 CFR 178	Shipping Container Specifications
Permit	NPDES # CO-0001333

Code of Colorado Regulations

6 CCR 1007-3	Waste Management Division; Hazardous Waste
Part 99	Notification
Part 100	Permit Regulations
Part 260	Hazardous Waste Management System: General
Part 261	Identification and Listing of Hazardous Waste
Part 262	Standards Applicable to Generators of Hazardous Waste
Part 263	Standards Applicable to Transporters of Hazardous Waste
Part 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal (TSD) Facilities
Part 265	Interim Status Standards for Owners and Operators of Hazardous Waste TSD Facilities
Part 268	Land Disposal Restrictions
Permit	RCRA Permit # 91-09-30-01

Code of Colorado Regulations (continued)

5 CCR 1001-3 Air Quality Division; Colorado Air Quality Regulations
- 1 Air Regulation
- 2 Air Regulation
- 3 Air Regulation
- 6 Air Regulation
- 7 Air Regulation
- Permit Air Emissions Permit # 91JE316(1)
- Permit RCRA Permit # 91-09-30-01

Department of Energy (DOE) Agreements with the State of Colorado and the Environmental Protection Agency

- Agreement in Principle (AIP)
- Federal Facilities Compliance Agreement (FFCA II)
- Interagency Agreement (IAG)

DOE Orders

- 1324.2A Records Disposition --
  Checklist #'s 159, 164, 168, 169, 171
- 1324.5A Records Management Program --
  Checklist #'s 20, 155, 159, 164, 168, 169, 171, 226
- 1540.2 Administrative Procedures for Transporting Hazardous Waste --
- 4430.4A Maintenance Management Program --
  Checklist #'s 15, 16, 18, 20, 121, 143, 226
- 4700.1 Project Management System --
  Checklist 123
- 5000.3B Occurrence Reporting and Processing of Operations Information --
  Checklist #'s 155, 316
- 5400.1 General Environmental Protection Program --
  Checklist #'s 33, 117, 151, 168, 191, 192, 195, 196, 314, 315, 325, 327, 328, 329, 355, 356, 357
- 5400.2A Environmental Compliance Issue Coordination --
  Checklist #'s 33, 187, 188, 195
- 5400.3 Hazardous and Radioactive Mixed Waste Program --
  Checklist #'s 33, 36, 159, 171, 288, 289, 290, 291, 292, 293, 294, 296, 297, 298, 299, 300, 310, 311, 312, 330, 331, 332, 333, 334, 336, 338, 340, 341, 342, 344, 345, 346, 348
- 5400.5 Radiation Protection of the Public and the Environment --
  Checklist # 191
- 5440.1E National Environmental Policy Act (NEPA) --
  Checklist #'s 195, 196, 199, 309, 316, 317, 318, 319, 320, 354
- 5480.1B Environment, Safety, and Health Program for DOE --
  This order is superseded by the 5400.x series
- 5480.2 Hazardous, Toxic, and Radioactive Mixed Waste Management --
  Checklist # 191
- 5480.3 Safety Requirements for the Packaging and Transportation of Hazardous Materials, Hazardous Substances, and Hazardous Wastes --
  Checklist #'s 272, 273

DOE Orders (continued)

5480.4 Environmental Protection, Safety, and Health Protection Standards --
Checklist #'s 25, 88, 90, 93, 95, 108, 109, 111, 112, 114, 171, 192, 242, 258, 260

5480.5 Safety of Nuclear Facilities --
Checklist #'s 108,134, 135, 144, 151, 171, 201, 222, 226

5480.7A Fire Protection --
Checklist #'s 40, 41, 42, 43, 44, 46, 48, 49, 50, 51, 52, 53, 54, 55, 58

5480.8A Contractor Occupational Medical Program --
Checklist # 164

5480.9 Construction Safety and Health Program --
Checklist #'s 91, 95, 108, 109, 111, 114

5480.10 Contractor Industrial Hygiene Program --
Checklist #'s 89, 91, 92, 95, 111, 117, 168

5480.11 Radiation Protection for Occupational Workers --
Checklist #'s 95, 102, 108, 134, 164

5480.19 Conduct of Operations for DOE Facilities --
Checklist #'s 2, 3, 4, 5, 6, 9, 11, 12, 25, 26, 30, 126, 128, 134, 138, 147, 155, 229, 237, 238, 239, 288, 289, 290, 291, 292, 293, 294, 296, 297, 298, 299, 300

5480.20 Personnel Selection, Qualification, Training, and Staffing Requirements at DOE Reactor and Non-Reactor Facilities --
Checklist #'s 3, 15, 30, 130, 131, 134, 135, 138, 144, 147

5480.21 Unreviewed Safety Question --

5480.22 Technical Safety Requirements --
Checklist # 1

5480.23 Nuclear Safety Analysis Report --
Checklist #'s 40, 77, 201, 203, 219

5481.1B Safety Analysis and Review System --
Superseded by the above three orders

5483.1A Occupational Safety and Health Program for DOE Contractor Employees at GO-CO Facilities --
Checklist #'s 25, 88, 90, 93, 95, 102, 108, 171, 242, 258, 260

5484.1 Environment, Safety, and Health Protection Reports --
Checklist #'s 95, 102, 164, 168

5500.1B Emergency Management System --
Checklist # 176

5500.2B Emergency Notification, Reporting, and Response Levels --
Checklist # 191

5500.3A Planning and Preparedness for Operational Emergencies --
Checklist # 176

5500.4A Public Affairs Policy and Planning Requirements for Emergencies --
Checklist # 191

5630.11A Safeguards and Security Program --
Checklist #'s 59, 60, 61, 64, 65

5632.6 Physical Protection of DOE Property and Unclassified Facilities --
Checklist #'s 62, 63

5700.2C Cost Estimating, Analysis, and Standardization --
Checklist # 127

DOE Orders (continued)

5700.6C Quality Assurance --
Checklist #'s 120, 121, 123, 126, 127, 128, 155, 164, 187, 192, 264, 266, 267

5820.2A Radioactive Waste Management --
Checklist #'s 191, 201, 222, 276, 278, 279, 281, 283

6430.1A General Design Criteria --
Checklist #'s 6, 40, 42, 43, 46, 47, 49, 50, 53, 54, 57, 65, 68, 72, 76,77, 78, 79, 92, 112, 121, 123, 288, 289, 290, 291, 929, 293, 294, 296, 297, 298, 299, 300, 361, 400

DOE-Rocky Flats Office (RFO) Instructions, Orders, and Procedures

RFI 4200.3	Standards Compliance for RFO Prime Contractors
RFOP 7110	Contractor Activity Oversight
RFI 5700.6-05	Rocky Flats Issues Management System
RFI 5500.1B	Emergency Preparedness Document Concurrence and Approval Process
RF 5000.3	Unplanned Events Notification and Reporting System